SONY

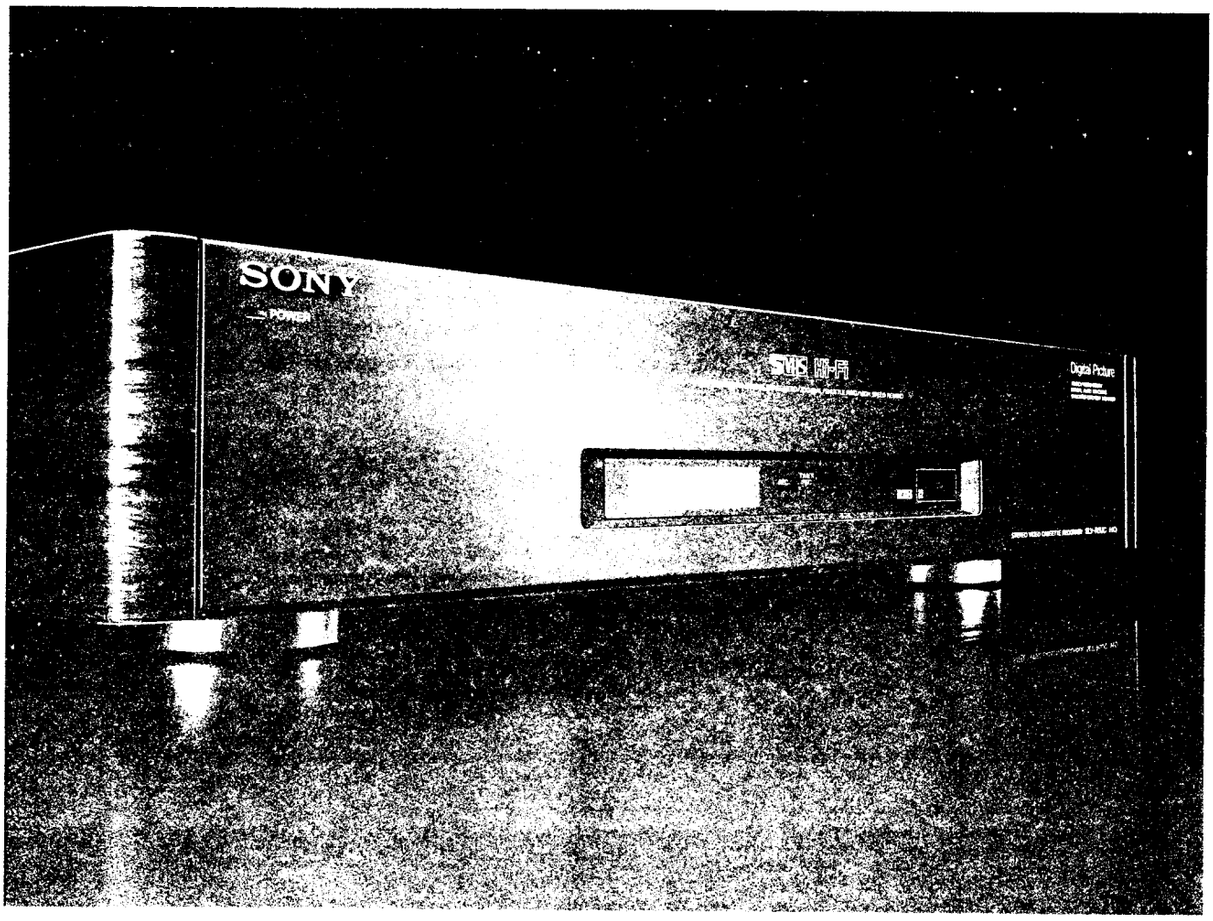
3-751-759-22 (2)

Video Cassette Recorder

SLV-R5UC

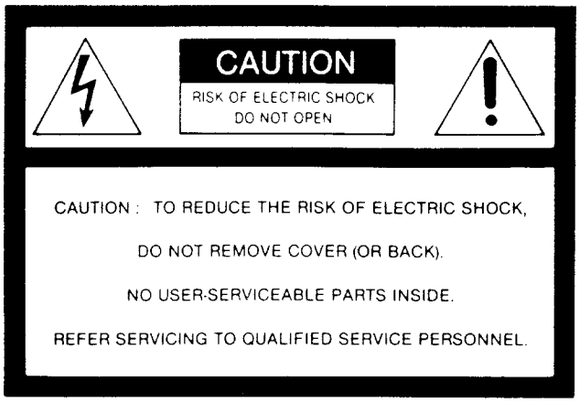
Operating Instructions

S-VHS



WARNING

To prevent fire or shock hazard, do not expose the unit tô rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For the customers in the U.S.A.

INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that inteference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the equipment with respect to the receiver

More the equipment away from the receiver

Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Owner's Record

The model number is located at the front.
The serial number is located on the top of the panel.
Record the serial number in the space provided right.
Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. SLV-R5UC

Serial No.

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Precautions

On Safety

- Operate the unit only on 120V AC, 60Hz.
- Should anything fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if it will not be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On Installation

- Allow adequate air circulation to prevent internal heat build-up.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Do not place any heavy object on the unit.

On Operation

- When the unit is not in use, turn the power off to conserve energy and to extend the life of the unit.
- Remove and store video cassettes after recording or playback.
- Store the cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

On Cleaning

- Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

On Repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

If you have any questions about this unit, contact your Sony dealer or qualified technician.

Before You Begin

☐ Check that the following accessories are in the carton with your unit:
- Remote Commander RMT-V5A (1)
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- Audio/video connecting cable (1)
- S video connecting cable (1)

☐ In the text of this manual, the buttons and switches are shown in capital letters.
Example:
Press **PLAY**.

☐ The buttons on the Commander and the VCR with the same mark have the same functions.

☐ Notes are enclosed in boxes.

Introduction

How to Use This Manual

This manual is arranged to help you quickly find the information you need for the operation of the SLV-R5UC. This manual consists of the following 4 sections.

1 Preliminaries

2 Preparation

3 Operation

4 Other Information

First, look through the Table of Contents.
If you are already familiar with VCR operation, read starting from the "Preparation" section. If you are new to VCR operation, start with "Identifying the Operational Parts" to familiarize yourself with this VCR. To have a quick overview of the operation of this VCR, refer to "Playing a Tape" (page 36), "Recording TV Programs" (page 46), and "Timer Recording" (page 54).

About the S-VHS System

The S-VHS system provides sharp, finely detailed pictures* through the S-VHS video signal recording/playback circuit and high quality S-VHS tape.
*Approximately 400 TV lines of horizontal resolution

This VCR can record and play back high quality pictures when the tapes bearing the S-VHS mark are used. The unit also can record and play back the pictures when tapes with the VHS mark are used.

On the recording/playback format and the types of video cassettes to be used

Before you begin, check to see which recording/playback format (S-VHS or VHS) you will use, referring to the following table.

	Tape used	Recording/playback format
During recording	S-VHS tape	Setting of S-VHS switch → "ON" → S-VHS "OFF" → VHS
	VHS tape	VHS format regardless of the S-VHS switch setting
During playback	Tape recorded in S-VHS format	Playing back on the S-VHS VCR → **Automatically selected** The tape recorded in the S-VHS format will be played back in the S-VHS format. The tape recorded in the VHS format will be played back in the VHS format.
		Playing back on the VHS VCR → **The tape recorded in the S-VHS format cannot be played back.** The tape recorded in the VHS format will be played back in the VHS format.
	Tape recorded in VHS format	VHS format

About Recording and Playback with this VCR

On recording and playback format

- This VCR bears the S VHS mark.
- The VCRs bearing the S VHS mark have been developed while using high resolution and high-quality picture technology which meet the existing VHS standards.
- If you record TV programs with this VCR, the recorded pictures will be played back giving the horizontal resolution level of the TV.

On the cassettes used

- Use video cassettes bearing the S VHS mark or the VHS mark.
- The video cassettes recorded in the VHS format can be played back on this VCR.
- The video cassettes recorded in the S VHS format using this VCR cannot be played back on a VCR with the VHS mark only.
- Some video sources used in other countries cannot be played back on this VCR due to the differences in color systems.

The S VHS mark was replaced by the new S VHS mark.
The products bearing the new S VHS mark are compatible with any products bearing the old S VHS mark. You can use them in the same way as before.
SUPER VHS is the name for S VHS (or S VHS). Its FM frequency band is 5.4 MHz — 7 MHz, which is wider than the regular VHS format.

Overview of the SLV-R5UC

Tape editing

S video input connector and video/audio input jacks on front panel
Offer easy connection to another VCR.

Flying erase head
Allows smooth transition between two recorders.

Synchronized editing
Allows you to control this VCR and the connected VCR simultaneously. You can use this VCR as the recorder and the player for editing.

Edit monitor function
Allows easier editing by displaying both the edit source picture and the picture to be edited on the TV screen simultaneously.

Control S input/output jacks and control L jack
Enables you to remotely control the tape transport of other Sony video equipment.

On-screen display

AUTO MENU
Displayed to set the VCR to the desired automatic tape operation.

AUTO REPEAT
Allows to play back the desired portion of the tape repeatedly.

P in P (picture in picture) function
Allows watching a small TV picture inset in the VCR playback picture and vice versa.

Data screen
Displays tape counter, tape speed, remaining tape length, current date and time, etc.

Timer title
Just before a timer recording starts, the date, time and channel of the program are recorded.

Other convenient functions

AUTO TRACKING function
Automatically adjusts the tracking condition for optimum picture.

JOG dial, SHUTTLE ring and SHUTTLE EDIT buttons
Allow quick access to the desired scene.

Video/audio insert recording
Allows insertion of new picture/sound onto a prerecorded tape.

Function memory
Enables starting of the desired tape operation with a press of the button.

High-quality picture/sound

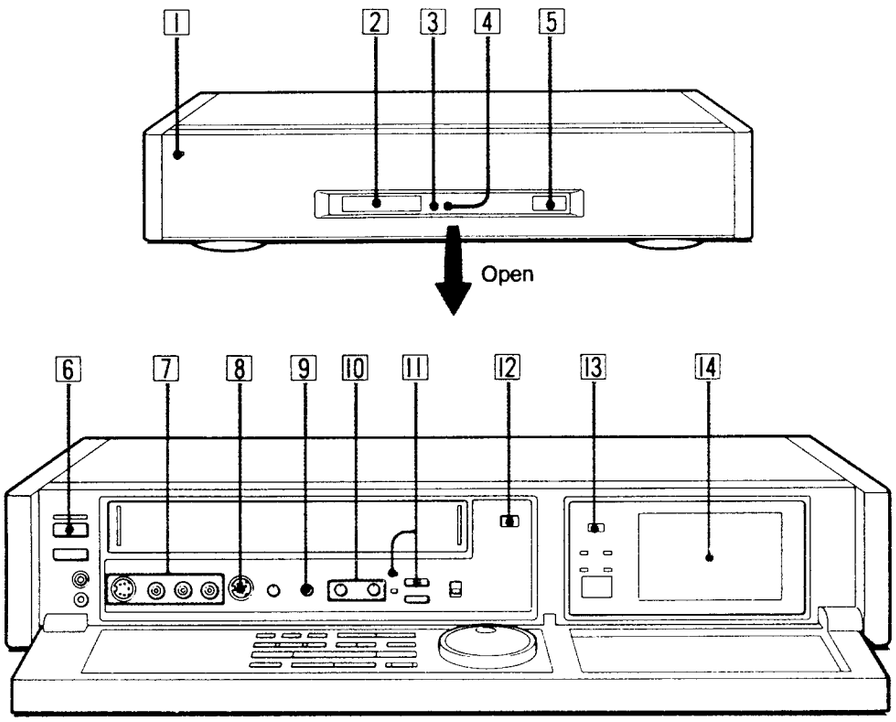
High-quality picture
The SLV-R5UC bears the S-VHS mark and provides sharp, finely detailed pictures through High Quality picture technology.
HQ: The video cassette recorder (VCR) with this marking incorporates VHS high-quality picture technology and is compatible with any video cassette recorder bearing the VHS mark.

High quality sound
This VCR automatically performs hi-fi recordings.

Dynamic range: More than 90 dB
Wow and flutter: Less than 0.005%
Audio frequency response: 20 — 20,000 Hz
Reproduces clear sound

Identifying the Operational Parts

Front



1 **POWER indicator**

2 **LCD (liquid-crystal display) Window (front panel)**
See "Indicators in the Display Window." (page 83)

3 **REC (recording) indicator**

4 **TIMER REC indicator**

5 **Remote sensor**

6 **POWER switch and indicator**
Press to turn on the power of the VCR. The indicator lights when power is supplied.

7 **LINE IN 2 S VIDEO connector (4-pin DIN type) and VIDEO/AUDIO jacks (phono type)**
Connect to the s video/video/audio output of other VCR or video camera.

8 **CONTROL L connector (5-pin DIN type)**
Connect to the CONTROL L connector of other Sony product for systematic operations such as synchronized editing.
If you connect a Sony editing controller RM-E300, you can perform automatic assemble editing of up to 8 programs.

About the LANC
LANC stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

9 **SHARPNESS control**
Adjust the sharpness of the playback picture if necessary. Normally set this control at the center indented position.

10 **REC LEVEL controls**
Adjust the audio recording level. Normally set these controls to the 5 position.

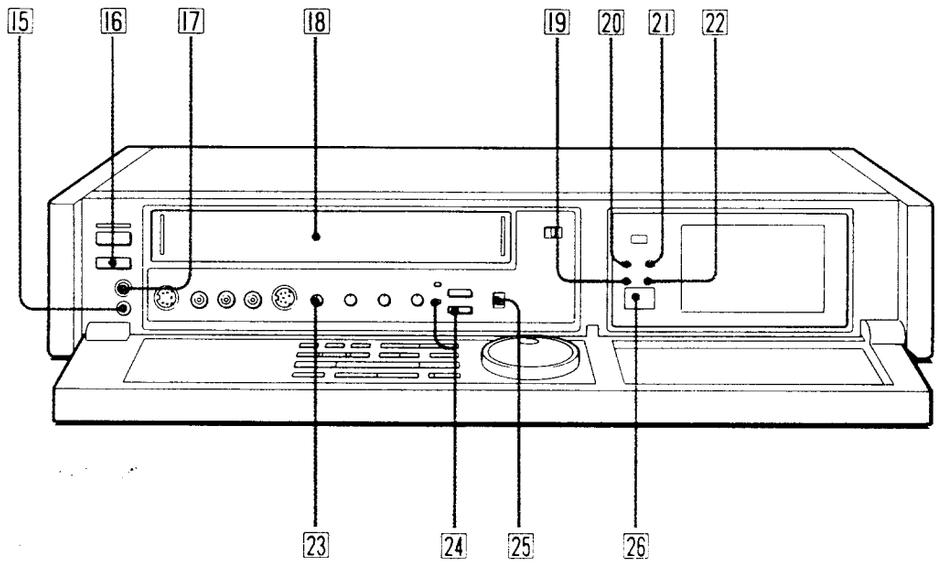
11 **EDIT MONITOR button and indicator**
Press to display the EDIT MONITOR display. The indicator lights when the EDIT MONITOR button is pressed.

12 **S-VHS switch**

13 **S-VHS indicator**

14 **Display window**
See "Indicators in the Display Window." (page 82)

Front



15 **PHONES (headphones) jack (stereo mini type)**
Connect headphones.

16 ⏏ **EJECT button**
Press to eject the cassette.

17 **MIC jack (mini type)**
Connect a microphone.

Note
A MIC jack of the SLV-R5UC is adaptable with the use of a monaural mini plug. If the plug used for your microphone is a stereo mini type, use a plug adaptor such as the PC-236MS or the PC-236HMS.

18 **Cassette compartment**
Insert a cassette. When the cassette is inserted, the power is automatically turned on.

19 **AUDIO INSERT indicator**
Lights when the AUDIO INSERT button is pressed.

20 **AUTO TRACKING indicator**
Blinks while the VCR is searching for the best tracking position.
Lights when the best position is obtained.

21 **HIGH SPEED REWIND indicator**
Lights when you press ◀◀◀ HIGH SPEED REWIND.

22 **VIDEO INSERT indicator**
Lights when the VIDEO INSERT button is pressed.

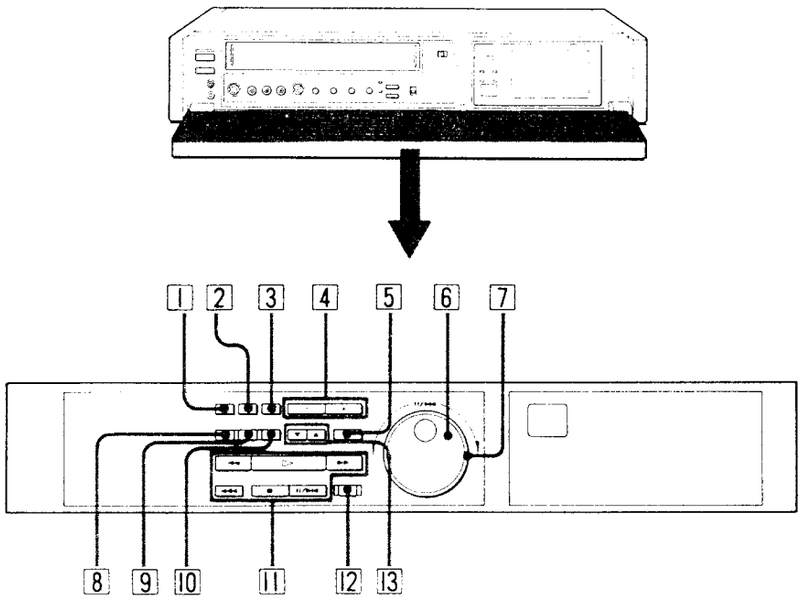
23 **PHONE LEVEL (headphone level) control**
Adjust the headphone level.

24 **SYNCHRO EDIT button and indicator**
Press to perform synchronized editing. The indicator lights when the SYNCHRO EDIT button is pressed.

25 **COMMAND MODE selector**
To remotely control the VCR with the supplied Remote Commander, set this selector to the same position as that on the Commander.
Usually set both selectors to VTR 3.

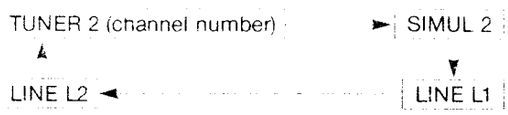
26 **Remote sensor**
Point the supplied infrared Remote Commander RMT-V5A here.

Inside the Front Panel



1 ANT TV/VTR button
Press so that the VTR indicator lights to watch a program selected on the VCR. To watch one TV program while recording another, press this button again to turn off the indicator.
This button is effective when your TV is connected to the VCR via the VHF antenna terminal only.

2 INPUT SELECT button
Press so that the desired input mode indicator appears in the display window to select the program to be recorded. The indicator changes as follows.



3 REC MODE button
Press to select the recording tape speed, SP or EP.

4 CHANNEL + / – buttons
Press to select the preset channels. Press + to advance and – to reverse.

5 TRACKING AUTO/MANUAL button
Press to reactivate the automatic tracking function after adjusting tracking manually.

6 JOG dial
Use to wind or rewind the tape to the desired point. Turn to change the playback speed (frame-by-frame, slow, × 1) during playback or in recording pause mode.
Playback speed varies according to the speed at which you turn the dial.

7 SHUTTLE ring
Use to wind or rewind the tape to the desired point. Turn to select the playback speed (1/5, × 1, × 2 or continuous scan speed) during playback or in recording pause mode.

8 EDIT ON/OFF button
Normally keep this button at OFF (i.e. the EDIT indicator is off in the display window). When using this VCR for editing, press this button to light the EDIT indicator.

9 TIMER REC ON/OFF button
Press to set the VCR to timer recording standby mode.
When changing or canceling a timer recording, or operating the unit before a timer recording starts, press this button to get out of timer recording standby mode.

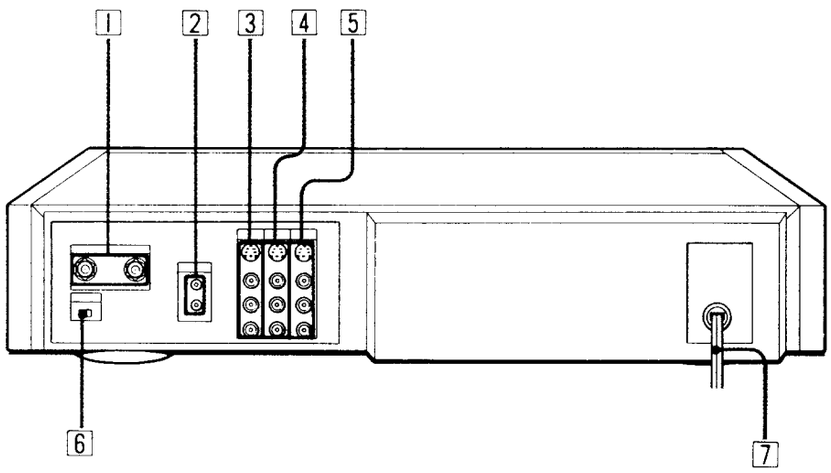
10 QUICK TIMER button
Press to start quick timer recording and to set the recording duration.

11 Tape transport buttons
◄◄ REW (rewind), ▷ PLAY, ►► FF (fast-forward), ■ STOP, ❚❚/►◄ PAUSE/STILL, ◄◄◄ HIGH SPEED REWIND

12 ● REC (recording) button
Press to start recording.

13 TRACKING NORMAL/SLOW and STILL ADJUST buttons
Press either of the buttons to clear streaks that may appear on the screen during normal or slow speed playback or to reduce picture shaking in still mode.

Rear Panel



1 **VHF/UHF IN and OUT connectors (F type)**

2 **CONTROL S IN/OUT jacks (mini type)**
IN: Connect to the CONTROL S output jack of a Sony TV set or TV tuner to operate the VCR by remote control through them.
Also connect to the CONTROL S output jack of another Sony VCR for synchronized editing.
OUT: Connect to the CONTROL S input jack of other Sony product for systematic operations such as synchronized editing.

3 **LINE IN 1 S VIDEO connector (4-pin DIN) and VIDEO/AUDIO jacks (phono type)**
Connect to the LINE OUT AUDIO and S VIDEO/VIDEO jacks of other video equipments.
If you want to select the input from S VIDEO of LINE IN 1, set "LINE IN 1 VIDEO" on the MODE SET menu to "S". If you want to select the input from VIDEO, set the menu to "STD". (page 29)

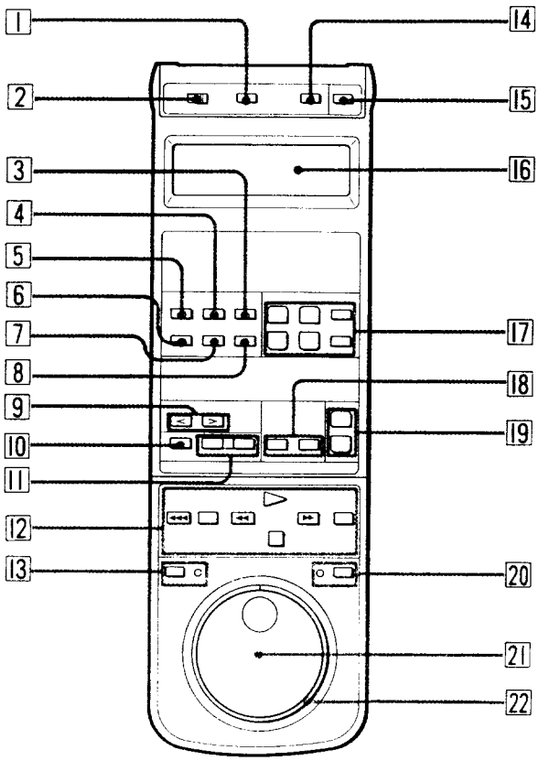
4 **LINE OUT S VIDEO connector (4-pin DIN) and VIDEO/AUDIO jacks (phono type)**
Connect to the LINE IN AUDIO and S VIDEO/VIDEO jacks of other video equipments.
If you connect the TV to these jacks, on-screen display does not appear.

5 **MONITOR OUT S VIDEO connector (4-pin DIN) and VIDEO/AUDIO jacks (phono type)**
Connect to the LINE IN jacks on a TV. The VCR displays on-screen display on the TV or monitor through this connection.

6 **RF UNIT selector**
Use to select the channel for VCR, 3CH or 4 CH, whichever is not active in your area.

7 **AC power cord**

Remote Commander



1 **TIMER REC ON/OFF button**
Press to enter timer recording standby mode.

2 **LEARN/USER selector**
Normally, set to USER.
Set to LEARN to have this Commander memorize the functions. (See "Remotely Controlling TVs with the Supplied Commander" on page 16.)

3 **INDEX button**
Press to enter the index function mode.

4 **TIMER ON SCREEN button**
Use to display the timer settings on the TV screen.

5 **EDIT MONITOR button**

6 **DATA SCREEN button**
Press to erase or display the on-screen display.

7 **AUDIO MONITOR button**
Press to select the monitor sound.

8 **COUNTER RESET button**
Press to reset the counter number to 0H00M00S.

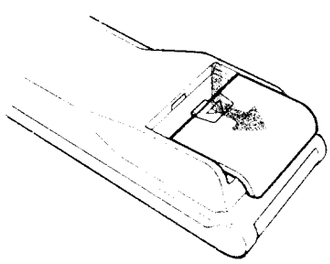
9 **SHUTTLE EDIT buttons**
Keep the buttons pressed to obtain 1/5 speed playback; <for reverse and> for forward playback.

10 **II PAUSE button**

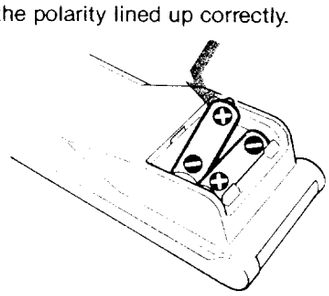
11 **● REC (recording) buttons**
Press two buttons simultaneously.

Battery insertion

1 Open the lid.



2 Insert two size AA (IEC designation on R6) batteries with the polarity lined up correctly.



[12] **Tape transport buttons**
⏪/⏩ SEARCH (reverse/forward)
▶ PLAY
◀◀ REW (rewind)
▶▶ FF (fast-forward)
■STOP
◀◀◀ HIGH SPEED REWIND

[13] **JOG/SHUTTLE function button and indicator**
Before using JOG and SHUTTLE on the Commander, press to make the VCR enter the still picture mode.

[14] **ANT TV/VTR (Antenna TV/VTR) button**
Press to light the VTR indicator in the display window to watch the playback picture or the TV program selected on the VCR. When you want to watch a TV program while the VCR is in use, press this button again to turn off the VTR indicator. This button is effective when your TV is connected to the VCR via the VHF antenna terminal only.

[15] **POWER switch**

[16] **LCD (liquid-crystal display) window**
See "Indicators in the Display Window." (page 83)

[17] **TV Operation buttons**
VOL (volume) + / – buttons
CHANNEL + / – buttons
POWER switch
TV/VIDEO button

[18] **AUDIO and VIDEO INSERT buttons**
Press to insert a new picture and/or sound onto a prerecorded tape.
AUDIO: To insert sound on the normal audio track
VIDEO: To insert picture and hi-fi sound on the video track

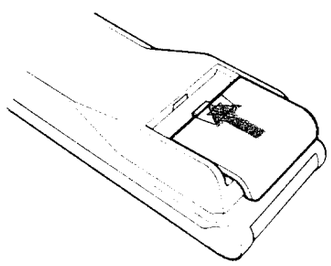
[19] **CHANNEL + / – buttons**

[20] **CHANNEL function button and indicator**
Before using JOG on the Commander for channel selection, press this button.

[21] **JOG dial**
Use to wind or rewind the tape to the desired point. Turn to select the playback speed by the turning speed during playback.

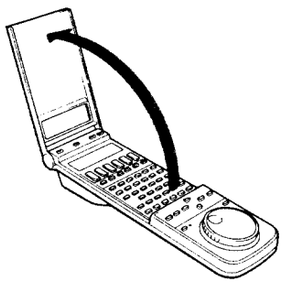
[22] **SHUTTLE ring**
Use to wind or rewind the tape to the desired point. Turn to select the playback speed by the turning angle during playback.

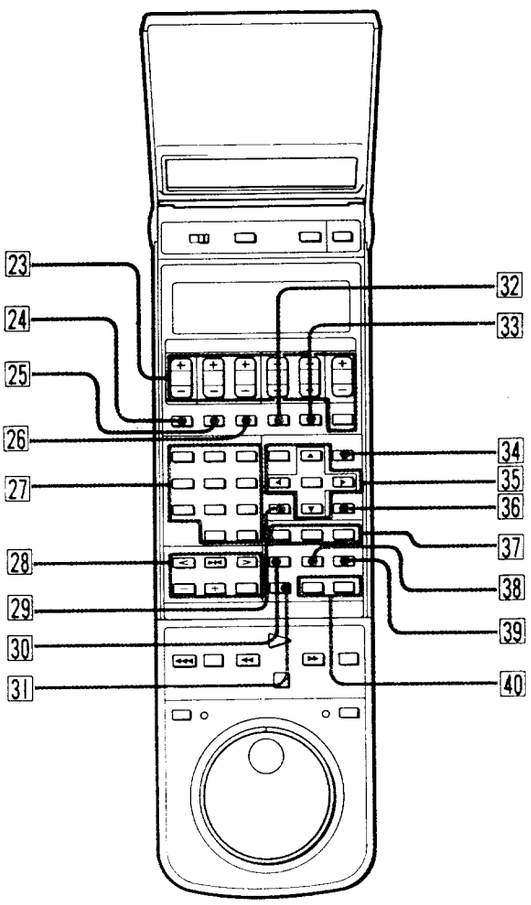
3 Close the lid.



Notes on batteries
- With normal operation, the batteries last for approximately 6 months.
- If the Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

Remote Commander





23 **Timer recording/clock set buttons**
- ❶ DAY
- ❷ TURN ON
- ❸ TURN OFF
- ❹ CH (channel)
- ❺ TRANS (transmit)

24 **CLOCK SET (SET/START) button**

25 **REC MODE button (Use for timer recording only)**
Press to select the recording tape speed, SP or EP.

26 **INPUT SELECT button (Use for timer recording only)**
Press to select the sources to be recorded.
The selected input mode indicator appears in the LCD window of the Commander.

27 **Channel number and ENTER buttons**
Press the appropriate button (s) and **ENTER** to select the channel directly.
For example, to select channel 10, press **1, 0** and **ENTER** or to select channel 4, press **4** and **ENTER.**

28 **Playback direction set, frame-by-frame, still, SLOW +/– and ×2 buttons.**
Press ⏭ for a still picture.
Press <◄ II / II ►> to select the direction for frame-by-frame picture in playback still mode.
Press <◄ II / II ►> to select the direction in any playback mode.
Press I► SLOW +/– for slow playback between 1/5 to 1/30 times normal speed. Press + or – to change the playback speed.
Press ×2 for double speed playback.

29 **FUNCTION MEMORY button**
Press to execute one of the sequential tape operations in the FUNCTION MEMORY menu assigned to this button.

30 **TIMER CLEAR button**
Press to clear the memory of the timer settings.

31 **TIMER CHECK button**
Press to check and correct the timer settings.

32 **MEMORY button**
Press to store the timer settings. Also use to call up the desired memory indication.

[33] **NORM (normal)/CATV button**
To set cable TV channels for timer recording, press to light up the CATV indicator in the LCD window of the Commander. In this case, be sure to select CATV in the TUNER PRESET menu. (page 33)

[34] **COMMAND MODE selector**
To remotely control the VCR with the Commander, set this selector to the same position as that on the VCR. Usually set both selectors to VTR 3.
Change the position as shown below to control other Sony VCRs.
VTR 1: For Sony Betamax VCRs
VTR 2: For Sony 8mm format VCRs
VTR 3: For Sony VHS format VCRs

[35] **Menu operation buttons**
Press **MENU** to display or erase the main MENU.
Press ◄/►/▲/▼ to move the cursor or change the setting and press **EXECUTE** to store the setting.

[36] **TV SCAN button**
Press to watch each TV channel for a few seconds in the preset order.

[37] **P in P (picture in picture) buttons**
P in P (for inserting the subsidiary picture in the playback picture)
SHIFT (for changing the position of the subsidiary picture)
DIGITAL OFF (for turning off the subsidiary picture).

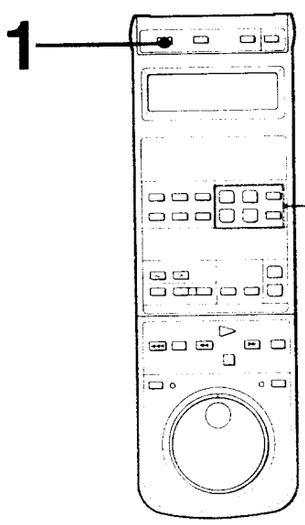
[38] **REC MODE button**
Press to select recording tape speed, SP or EP.
For timer recording, use the other REC MODE button on the Commander. (See [25] REC MODE button.)

[39] **INPUT SELECT button**
Press to select the sources to be recorded.
The selected input mode indicator appears in the display window of the unit.
For timer recording, use the other INPUT SELECT button on the Commander.
(See [26] INPUT SELECT button.)

[40] **INDEX MARK/ERASE buttons**
Press to mark or erase an index signal on a tape during recording or playback.

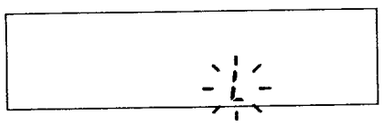
Remotely Controlling TVs with the Supplied Commander

You can operate Sony TVs with the TV operating buttons (POWER, TV/VIDEO, CHANNEL +/–, VOL +/–) on the supplied Remote Commander RMT-V5A.
In addition, the Commander can memorize the function of the remote control unit supplied to infrared remote control TVs other than Sony's. This "learning" function allows you to operate both your VCR and TV with this Remote Commander.

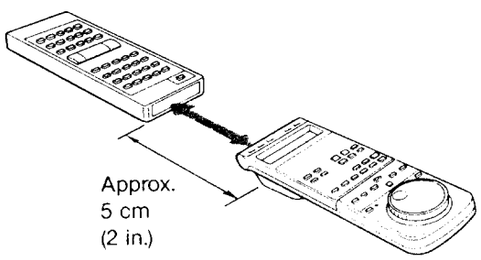


How to memorize the function of other remote control unit

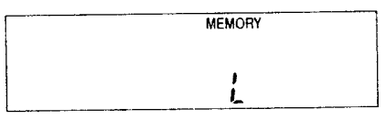
1 Set **LEARN/USER** to LEARN.
The L indicator blinks in the LCD window.



2 Position the supplied Commander and the other remote control unit head to head.



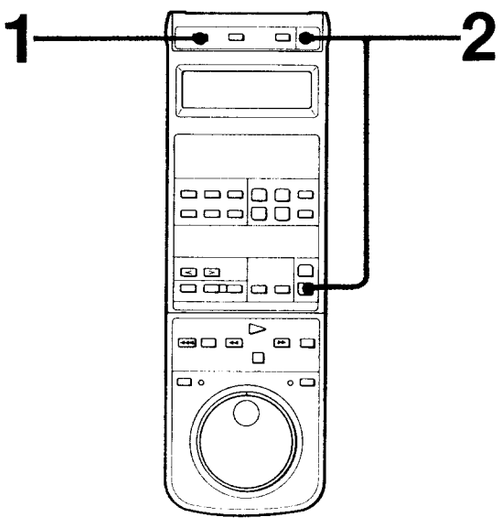
3 While pressing a button (eg: POWER for TV) of this Commander for which you want to memorize a function, keep pressing the function button (eg. power button) on the other remote control unit until the L indicator lights up and the MEMORY indicator appears.



To continue learning other functions, repeat step 3.

After learning is completed
Set LEARN/USER to USER.
You can operate the TV other than Sony with this Commander.

For accurate learning
Do not move the Commanders in the learning process.



To clear memorized functions

1 Set **LEARN/USER** to LEARN.

2 Keep pressing **POWER for VCR** and **CHANNEL — for VCR** until the C indicator blinks.
All the memorized functions are cleared and the functions of Sony TVs are restored.

Notes

- Before assigning a new function to a button, clear the memorized functions.
- When memories for learning functions are full, the MEMORY indicator lights and the E indicator blinks if you try to assign a new function. In this case, clear the memories.
- When there is equipment which emits noise, such as a fluorescent lamp, memories may become full as noise is also memorized to the buttons.
- If you open the cover of this Commander during learning function, the learning mode is released. Close it when you activate the learning function.

In the following cases, the E indicator blinks in the LCD window and the learning function does not work.

- When you press a button other than that for TV on this Commander.
- When you press two or more buttons on this Commander.
- When you press a button on the other control unit before pressing that on this Commander.

Connections

In order to watch the playback picture on the TV screen and receive TV progfams on this VCR, the VCR and the TV must be connected properly.
The connections vary depending upon the type of TV and antenna that you have.
We will show you here some typical ways you can make these connections with the supplied accessories.
Before operating the VCR, read through this section and make the correct connections.

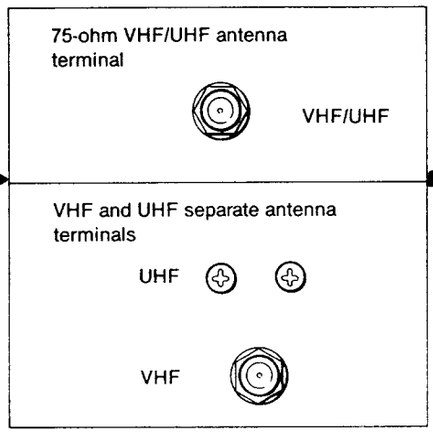
Before You Begin

- Turn off the power of the VCR and the TV.
- Do not connect the AC power cords until you complete all of the connections.
- **If your TV does not match the three examples below**
  Consult your nearest Sony dealer or qualified technician.

First Check Your TV

Basic connections

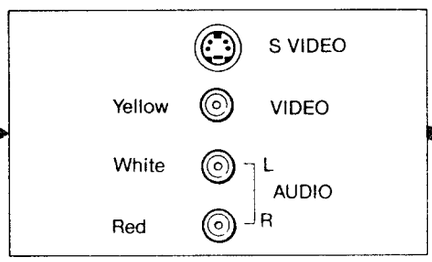
Check the antenna terminals on your TV



Read through "Connecting Examples 1 to 5."

Additional connections

If your TV has S video connector/video and audio input jacks



You can enjoy better picture quality.
Read through "Connecting Example 6."

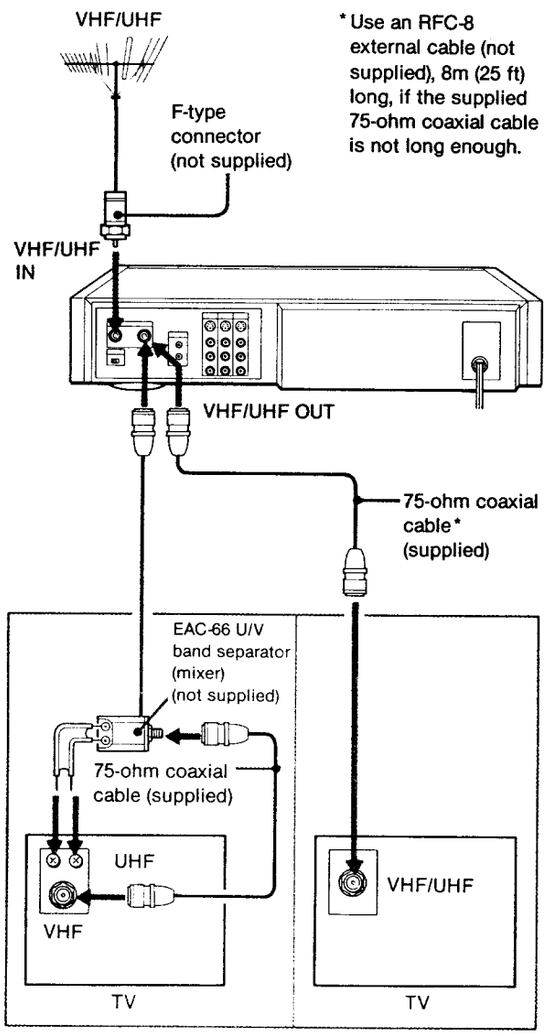
If you have an stereo audio system

You can enjoy better sound quality by connecting the VCR to the audio system. Read through "Connecting Example 7."

Caution

Connections between the recorder VHF/UHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in the instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices.
Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

Connecting Example 1
To Connect a Combination VHF/UHF Antenna



1 Disconnect the TV antenna cable from the TV and connect it to the VCR.

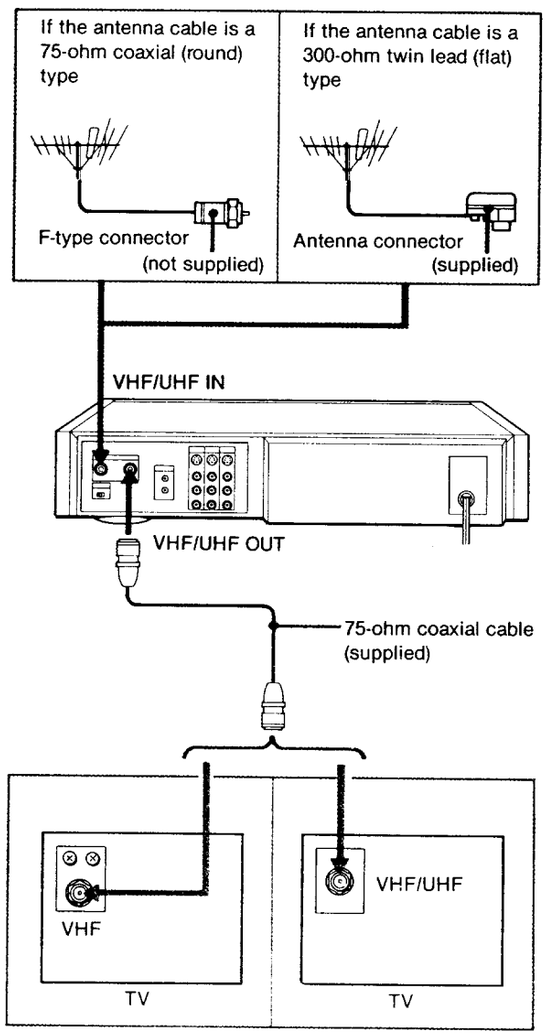
2 Connect the VCR and the TV.

If your TV has a single terminal for the VHF/UHF antenna
Connect directly using the supplied 75-ohm coaxial cable.

If your TV has separate VHF/UHF antenna terminals
Use a U/V band separator.

How to attach the U/V band separator and the F-type connector
See page 23.

Connecting Example 2
To Connect a VHF Antenna Only



1 Disconnect the TV antenna cable from the TV and connect it to the VCR.

If the antenna cable is a 75-ohm coaxial (round) type
Use an F-type connector (not supplied).

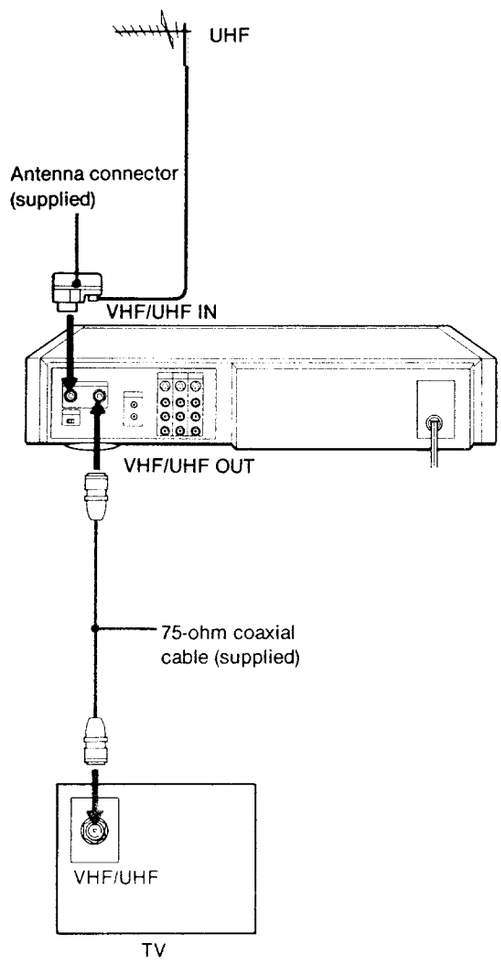
If the antenna cable is a 300-ohm twin lead (flat) type
Use the antenna connector (supplied).

2 Connect VHF/UHF OUT on the VCR and the VHF antenna terminal on the TV with the 75-ohm coaxial cable (supplied).

How to attach the antenna connector and an F-type connector
See page 23.

Connecting Example 3
To Connect a UHF Antenna Only

A The VHF/UHF antenna terminal on the TV is combined

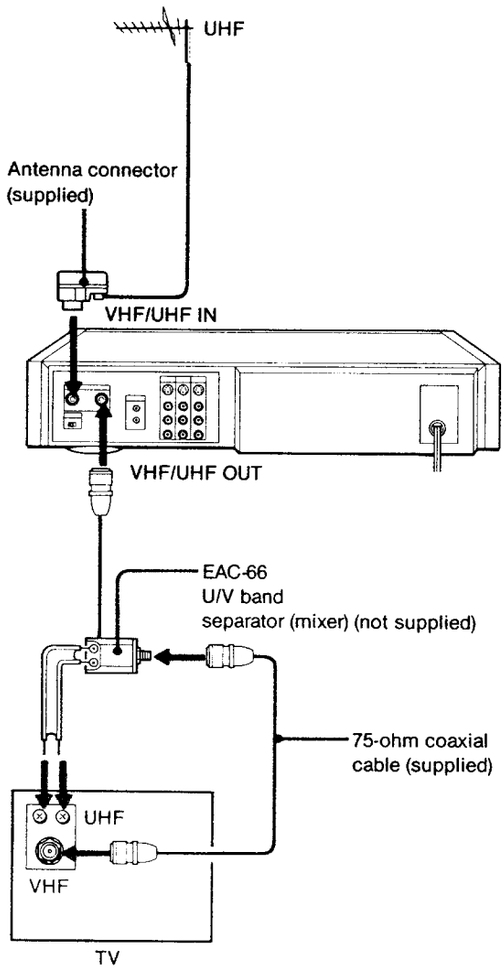


1 Attach the supplied antenna connector to the cable.

2 Attach the antenna connector to VHF/UHF IN on the VCR.

3 Connect VHF/UHF OUT on the VCR and the VHF/UHF antenna terminal on the TV.

B The VHF/UHF antenna terminals on the TV are separated



1 Attach the supplied antenna connector to the cable.

2 Attach the antenna connector to VHF/UHF IN on the VCR.

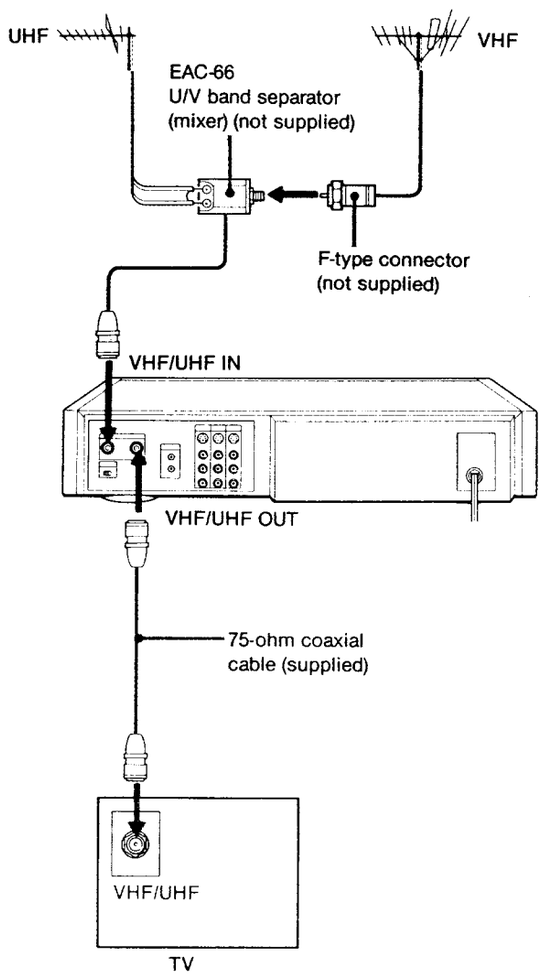
3 Attach the EAC-66 U/V band separator to VHF/UHF OUT on the VCR.

4 Connect the separator to the VHF and UHF antenna terminals on the TV.

How to attach the antenna connector and the U/V band separator
See page 23.

Connecting Example 4
To Connect Both the VHF and UHF Antennas

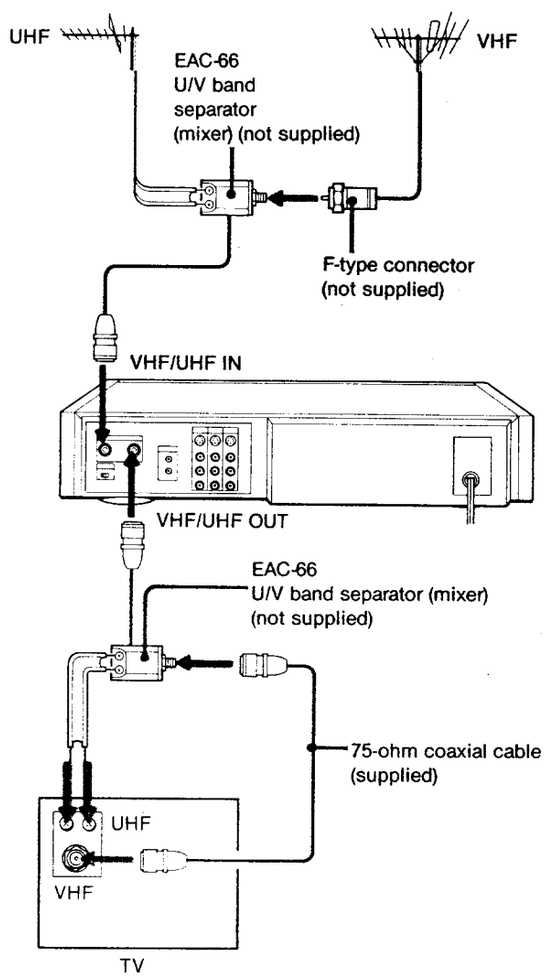
A If the VHF/UHF antenna terminal on the TV is combined



1 Attach a U/V band separator (mixer) with the VHF and UHF antennas to VHF/UHF IN on the VCR.

2 Connect VHF/UHF OUT on the VCR and the VHF/UHF antenna terminal on the TV.

B If the VHF/UHF antenna terminals on the TV are separated



1 Attach an U/V band separator (mixer) with the VHF and UHF antennas to VHF/UHF IN on the VCR.

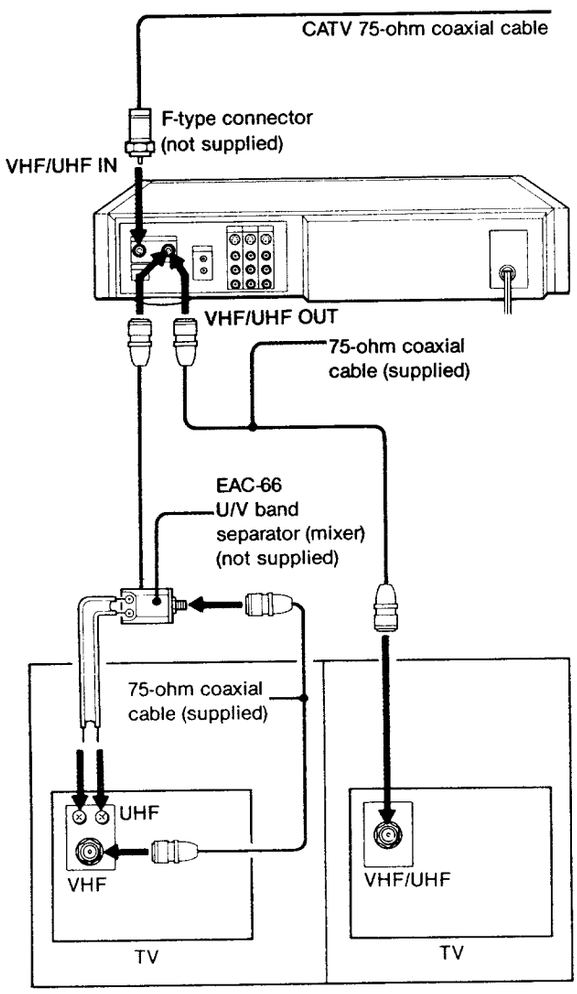
2 Attach an U/V band separator to VHF/UHF OUT on the VCR.

3 Connect the separator to the VHF and UHF antenna terminals on the TV.

How to attach a U/V band separator and an F-type connector
See page 23.

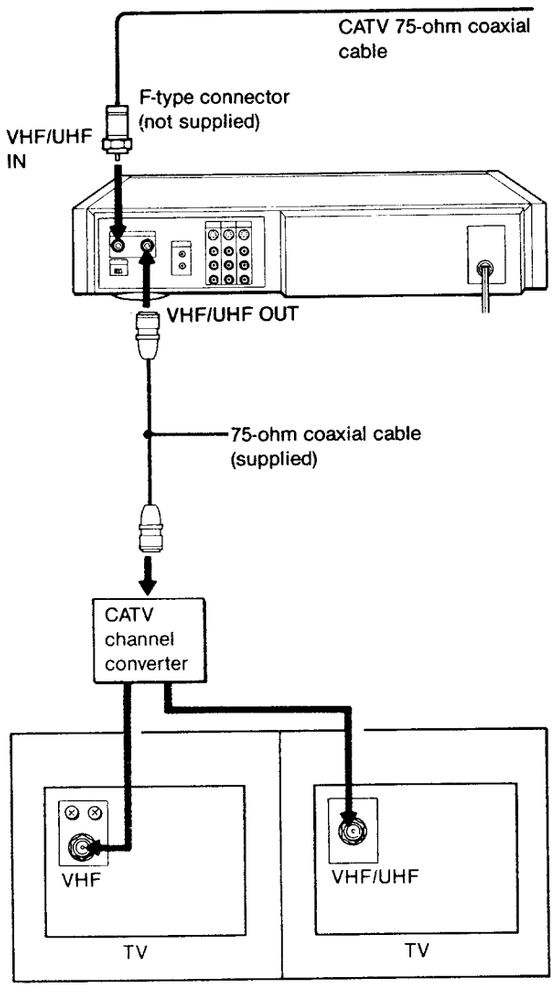
Connecting Example 5
To Connect a Cable TV System

A If your TV set has a built-in CATV decoder



A connecting example is given above, however you should consult your cable company to make sure that the cable is properly connected.

B If your TV set does not have a built-in CATV decoder

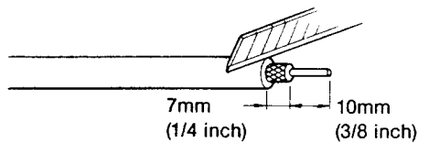


Connect the cable TV channel converter between the TV and the VCR.
By setting ANT TV/VTR to TV, you can watch a cable TV program while playing back or recording video sources using LINE IN VIDEO on the VCR.

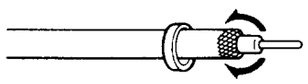
Note to CATV system installer in the U.S.A
This reminder is provided to call the cable TV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Attaching an F-type connector (not supplied)

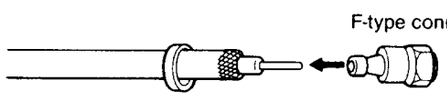
1 Strip the cover of the cable so that 3/8 inch of the center conductor is exposed.



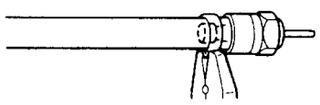
2 Slip the crimping ring over the cable and fold back the shield.



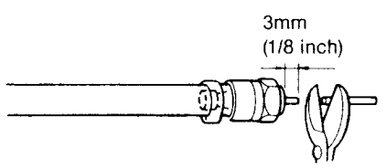
3 Insert the inner conductor into the F-type connector shaft and push the end of the cable into the connector as far as it will go.



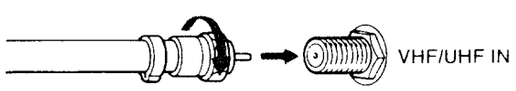
4 Slide the crimping ring over this assembly and pinch the crimping ring with pilars to hold the connector in place.



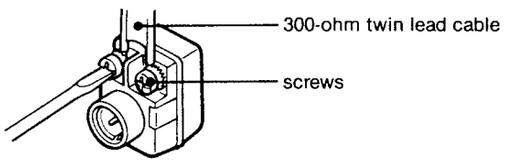
5 Cut the center conductor.



6 Insert the F-type connector into VHF/UHF IN on the VCR.



Attaching an external antenna connector (supplied)

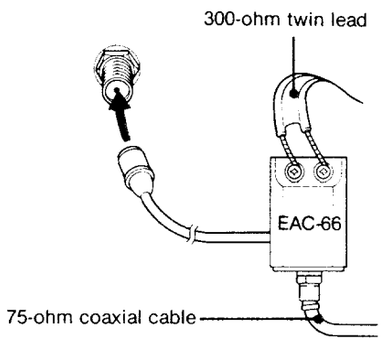


1 Loosen the screws on the antenna connector.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws on antenna connector.

3 Tighten the screws again.

Attaching an EAC-66 U/V band separator (mixer) (not supplied)



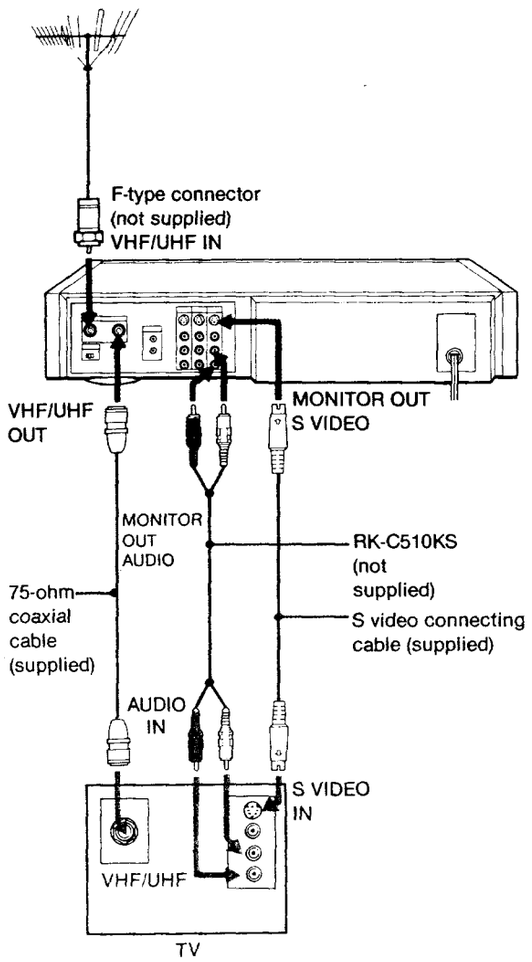
1 Loosen the screws on the U/V band separator (mixer).

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws.

3 Connect the 75-ohm coaxial cable to the U/V band separator (mixer).

4 Connect the U/V band separator (mixer) to VHF/UHF IN or OUT on the VCR.

Connecting Example 6
To Connect a TV Equipped with Video/Audio Input Jacks

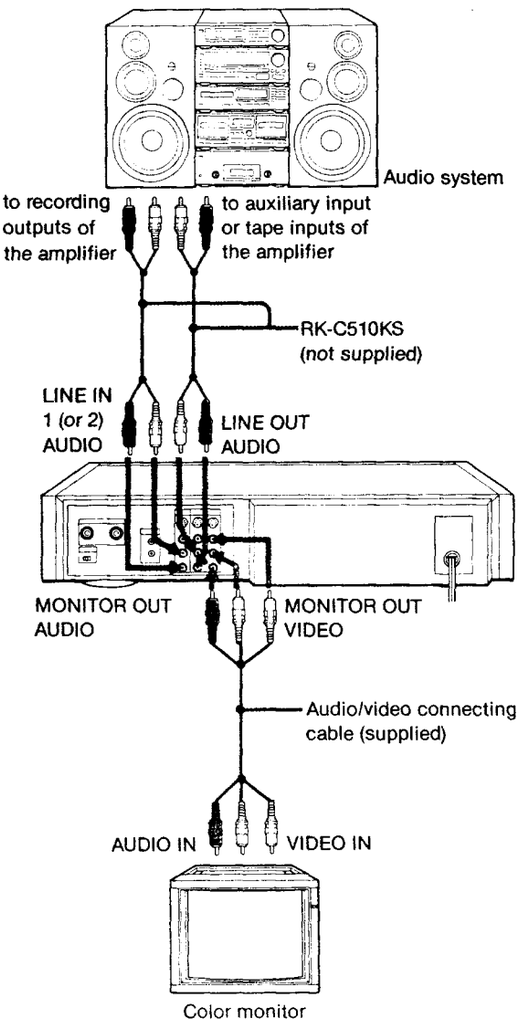


If your TV has an S video input connector and audio input jacks, connect them to the MONITOR OUT on the VCR to obtain a higher quality picture.

1 Make connections between an antenna and VHF/UHF IN on the VCR, and between VHF/UHF OUT on the VCR and the antenna terminal on the TV following examples 1 to 5 on pages 19 — 22.

2 Connect MONITOR OUT S VIDEO/MONITOR OUT AUDIO on the VCR and S VIDEO IN/AUDIO IN on the TV as illustrated.
If your TV does not have S VIDEO IN, connect MONITOR OUT VIDEO/MONITOR OUT AUDIO on the VCR and VIDEO IN/AUDIO IN on the TV with the supplied audio/video connecting cable.

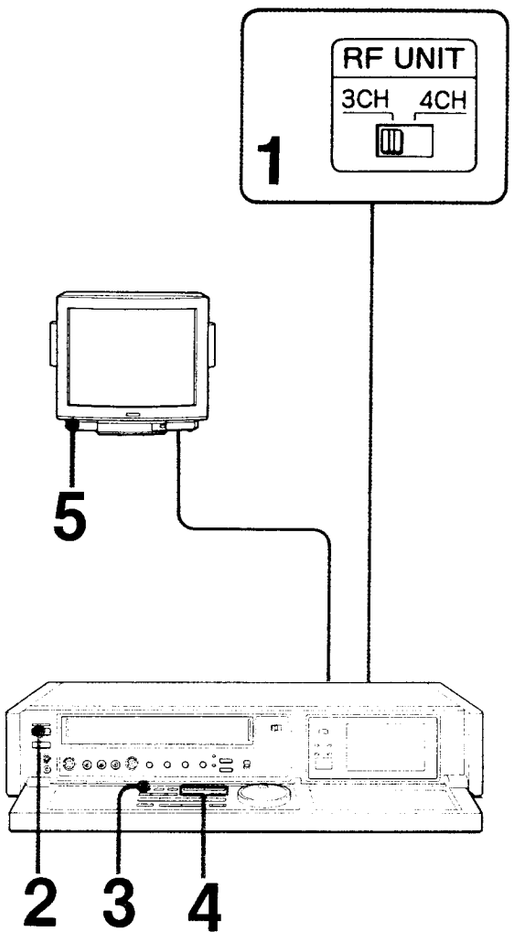
Connecting Example 7
To Connect an Audio System



You can enjoy tapes recorded in hi-fi stereo when the VCR is connected to your audio system.

Notes
- If the VCR is installed near a tuner or a radio, noise may be heard in AM reception. In this case, move the VCR away from the tuner or the radio, adjust the AM antenna for minimum noise, or connect an external AM antenna to the tuner.
- Since a hi-fi recorded tape has a wide dynamic range, turn down the volume on the amplifier before playing back the tape to avoid damaging the speakers.
- Before connecting or disconnecting the power cord of the VCR, be sure to turn off the connected amplifier.

Adjusting a TV



If you have connected your VCR and TV via antenna terminals only, either channel 3 or 4 must be selected on your TV to receive the signal from the VCR. To get the proper RF signal, set the RF UNIT selector on the rear panel of the VCR.
If the connection between the VCR and TV has been made via video/audio jacks, skip this step.

1 Set **RF UNIT** to 3 CH or 4 CH.
If channel 4 is active in your area, set the selector to channel 3, and vice versa.

2 Press **POWER**.
The indicator lights.

3 Press **ANT TV/VTR** so that the VTR indicator lights.

4 Check that the TUNER indicator appears in the display window, then select an active channel in your area by pressing **CHANNEL** +/−.

5 Turn on the TV and select either VHF channel 3 or 4 whichever was set on RF UNIT.
The TV program selected on the VCR appears on the TV screen.

Your TV is now tuned to receive the signal from the VCR. Whenever you use the VCR, select the channel you choose above on the TV.

Note
For details about TV channel setting, see the instruction manual of the TV.

Menu System

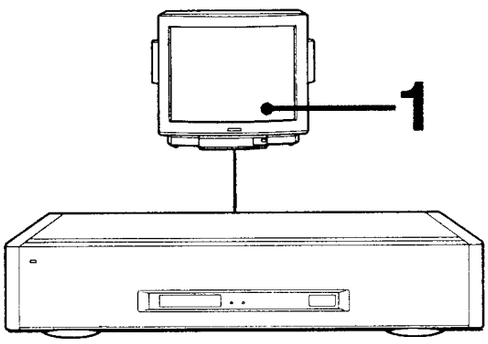
Many of the operations on this VCR are performed using a menu system. In this system you select a desired item from the items displayed on the TV screen.

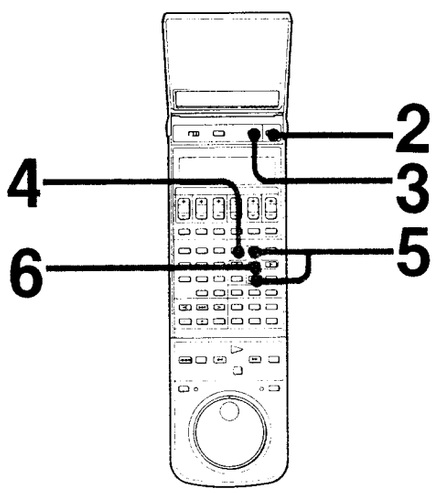
First display the main MENU and select the item you want to operate or preset.

How to Display the Main MENU

Before you begin

- Check the connection between the VCR and the TV.
- If your TV is equipped with video/audio input jacks, be sure to connect them to MONITOR OUT on the VCR for on-screen display. On-screen display does not appear if the TV is connected to LINE OUT VIDEO.





To erase the menu display
Press **MENU** again.

To display another menu display
Press **MENU** to erase the present menu and repeat steps 4 to 6.

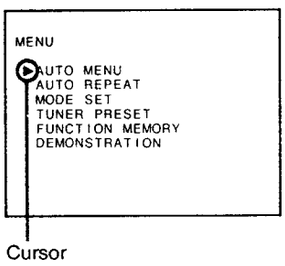
Operation

1 Turn on the TV.
If your TV is equipped with video/audio input jacks
Select the input for the VCR.
If your TV is not equipped with video/audio input jacks
Select the channel for the VCR (3 or 4).

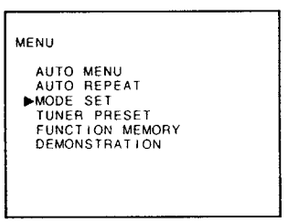
2 Press **POWER.**

3 Press **ANT TV/VTR** so that the VTR indicator lights. (Only for TV without video/audio input jacks)

4 Press **MENU.**
The main MENU appears.

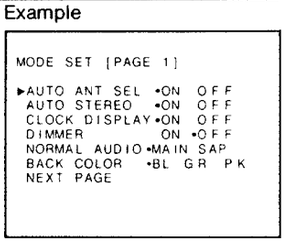


5 Move cursor to the desired menu with ▲ or ▼.



Example

6 Press **EXECUTE.**
The selected menu display appears.



Note
The position of the cursor is stored unless the power plug is disconnected.

About Each MENU

Here is a list of the menus that can be selected from the main MENU.
For details, refer to the sections indicated.

AUTO MENU
Select the desired automatic tape operation.
See "Presetting a Sequential Tape Operation". (page 40)

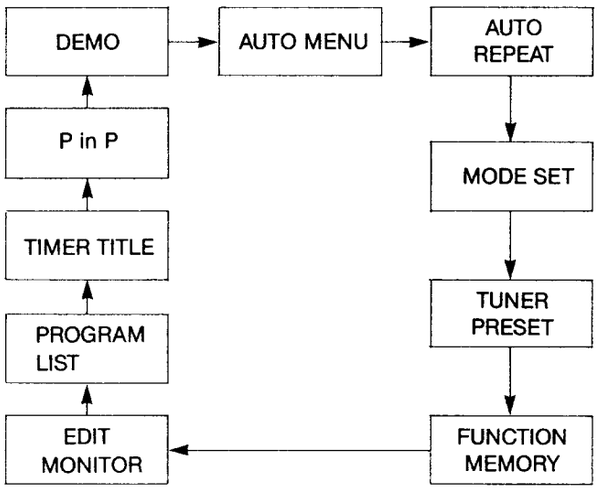
AUTO REPEAT
Select the portion which you want to play back repeatedly.
See "Playing Back a Tape Repeatedly". (page 42)

MODE SET
Set the desired mode.
See "Mode Setting". (page 28)

TUNER PRESET
Preset the active channels in your area.
See "Presetting Active Channels". (page 32)

FUNCTION MEMORY
Store one of the automatic tape operations to the FUNCTION MEMORY button on the Commander. You can activate the operation simply by pressing **FUNCTION MEMORY**.
See "Storing a Desired Tape Operation to the FUNCTION MEMORY Button". (page 41)

DEMONSTRATION
Select to display each menu and examples of EDIT MONITOR, PROGRAM LIST and TIMER TITLE in sequence, as follows.



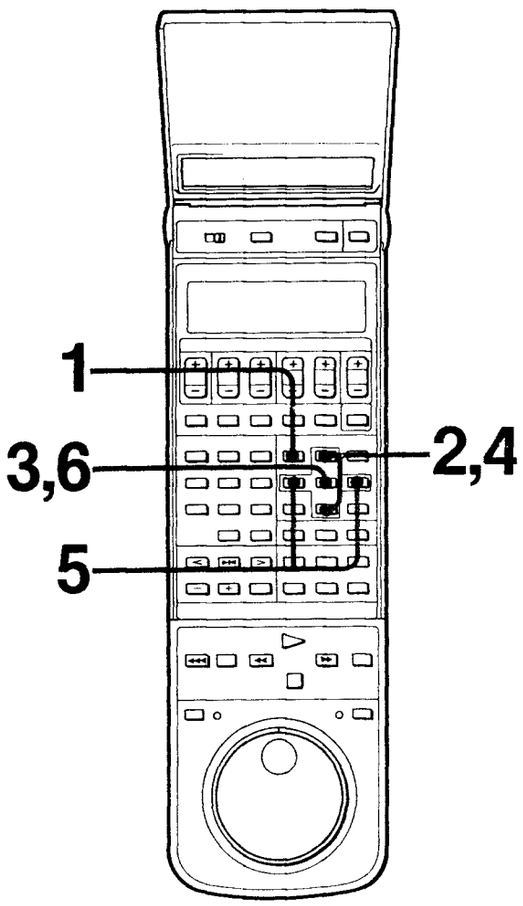
- Press **EXECUTE** to stop at the desired display. To resume the DEMONSTRATION display, press EXECUTE again.
- Press any key except **EXECUTE** to get out of the DEMONSTRATION mode.

Mode Setting

Before operating the VCR, change various mode settings if necessary.

Operation

Use ▲ and ▼ to move cursor.
Use ▶ and ◀ to move dot.



1 Press **MENU**.
The main MENU appears.

2 Move cursor to MODE SET.

```
MENU

  AUTO MENU
  AUTO REPEAT
▶MODE SET
  TUNER PRESET
  FUNCTION MEMORY
  DEMONSTRATION
```

3 Press **EXECUTE**.
The MODE SET [PAGE 1] menu appears.

```
MODE SET [PAGE 1]

▶AUTO ANT SEL  •ON  OFF
 AUTO STEREO   •ON  OFF
 CLOCK DISPLAY •ON  OFF
 DIMMER        ON  •OFF
 NORMAL AUDIO  •MAIN SAP
 BACK COLOR    •BL GR PK
 NEXT PAGE
```

To display the MODE SET [PAGE 2] menu
Move cursor to NEXT PAGE and press **EXECUTE**.

```
MODE SET [PAGE 2]

▶TIMER TITLE     •ON  OFF
 TIMER REC-REW   ON  •OFF
 AUDIO MIX       ON  •OFF
 SIMUL AUDIO IN  •L1  L2
 LANC MODE       M   •S
 LINE IN 1 VIDEO S   •STD
 PREVIOUS PAGE
```

To return to the [PAGE 1] menu, move cursor to PREVIOUS PAGE and press **EXECUTE**.

Note
The displayed page is stored unless the power plug is disconnected.

4 Move cursor to the desired mode.

MODE SET [PAGE 1] menus

AUTO ANT SEL (Automatic Antenna Selector)

- **If your TV is not equipped with video/audio inputs**
  Set to ON.
  When playing back a tape, the picture is automatically displayed on the screen simply by selecting the channel for the VCR on the TV.
  To watch TV programs selected on the TV, press **ANT TV/VTR** to turn off the VTR indicator in the display window.
- **If your TV is equipped with video/audio inputs**
  Set to OFF.
  When playing back a tape, select the input for the VCR on the TV.
  To watch the TV programs selected on the TV, simply select the tuner input.

AUTO STEREO
If a stereo program received is noisy, set to OFF. The program is recorded in monaural but noise may be reduced.

CLOCK DISPLAY
To erase the current date and time from on-screen display, set to OFF.

DIMMER
To dim the display window, set to ON.

NORMAL AUDIO
When there is a SAP (Second Audio Program) broadcast, select SAP to record the SAP sound on the normal audio track. For details, see page 51.

BACK COLOR
Select the background color on the screen when no picture is displayed or the VCR is in MENU mode.
BL. . . blue
GR. . . green
PK. . . pink

MODE SET [PAGE 2] menus

TIMER TITLE
If you do not want to record a timer title consisting of date of recording, etc. on the tape before timer recording, set to OFF. For details, see page 62.

TIMER REC – REW
To automatically rewind the tape to recording start point after timer recording, set to ON. For details, see page 56.

AUDIO MIX
To listen to the sounds recorded on both the hi-fi video track and the normal audio track of the audio-inserted tape, set to ON. For details, see page 39.

SIMUL AUDIO IN
For FM simulcast recording select L1 or L2 according to which an FM tuner is connected. For details, see page 68.

LANC MODE
For synchronized editing by controlling with this VCR, set to M.
Set to S when you edit a tape with an editing controller such as the Sony RM-E300.

LINE IN 1 VIDEO
If you want to select the input from S VIDEO of LINE IN 1 VIDEO, set to S.
If you want to select the input from VIDEO of LINE IN 1 VIDEO, set to STD (standard).

5 Move dot to the desired setting.

6 Press **EXECUTE** to return to the original screen. The settings are stored.

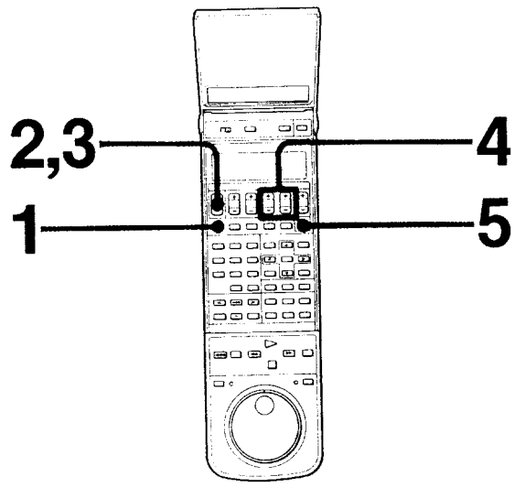
Date and Clock Setting

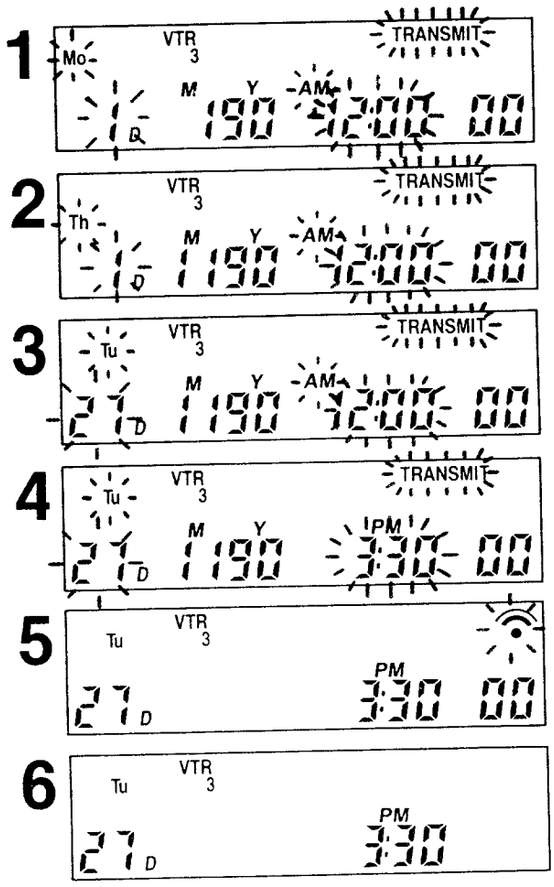
You can set the date and time between the years 1990 and 2005. Set the current date and time with the Remote Commander and transmit to the VCR.

Before You Begin

Check to see whether the **JOG/SHUTTLE** or **CHANNEL** indicator on the Commander is turned off. If not, press **JOG/SHUTTLE** or **CHANNEL** button to turn off the indicator.

Operation





Example: To set to November 27, 1990, 3:30 p.m.

1 Open the cover.
To change the clock setting, open the cover and press **CLOCK SET (SET/START)**.

2 Keep pressing the **D** (date) button** until 11 M 90 Y is displayed.
The date will be incremented slowly up to 30 days ahead and then the month will be incremented.
**To advance the digits one by one, press the D button and immediately release it.

3 Press the + side or – side of the **D** (date) button until 27D is displayed.
The day of the week appears automatically.

4 Press the **H** (hour) and **M** (minute) buttons under TURN OFF to set the current time.

5 Point the Commander at the VCR and press **TRANS** (transmit). For accurate setting, press **TRANS** simultaneously with an announced time signal.
A beep sound confirms that the date and clock setting is registered in the VCR as well.

6 Check the display window of the VCR and close the cover of the Commander.

If a short beep sounds repeatedly when you press TRANS
The VCR is in timer recording, quick timer recording or timer recording standby mode. The setting cannot be transmitted.

When AM12:00 is blinking in the display window of the VCR
There has been a power interruption for more than 3 hours or the power cord has been disconnected for more than 3 hours. You will have to re-set the date and clock again.

Presetting Active Channels

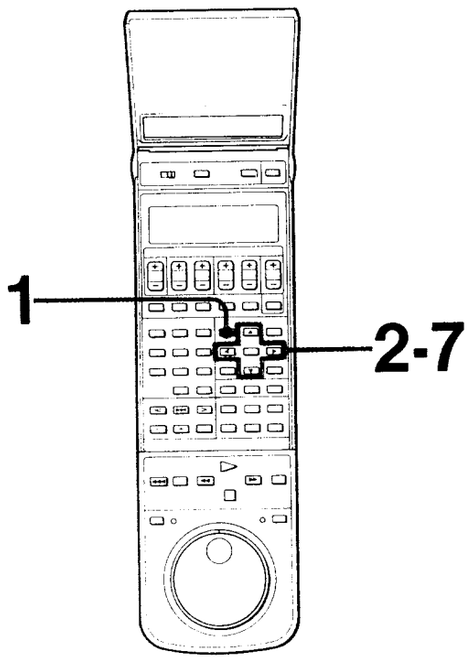
This VCR is capable of receiving VHF/UHF channels 2 to 69 and CATV channels 1 to 125. You can preset all receivable channels automatically by automatic presetting so that they appear in numerical sequence when you press **CHANNEL** +/−. If there are unwanted channels, you can erase them manually or if you know the channel numbers to be preset, you can preset them manually so that only the desired channels appear when you press **CHANNEL** +/−.

Before Presetting Channels

- Turn on the VCR and the TV.
- If your TV is not equipped with video/audio input jacks, set the TV to the correct channel (3 or 4) for the VCR and press **ANT TV/VTR** to display the VTR indicator.
- If your TV is equipped with video/audio input jacks, select the video input on the TV.
- The on-screen display does not appear unless the TV is connected to MONITOR OUT on this VCR.
- Press **INPUT SELECT** so that the TUNER indicator and the channel number appear in the display window.

To Preset All Receivable Channels Automatically

Use ▲ and ▼ to move cursor.
Use ▶ and ◀ to move dot.



1 Press **MENU**.
The main MENU appears.

```
MENU

▶AUTO MENU
  AUTO REPEAT
  MODE SET
  TUNER PRESET
  FUNCTION MEMORY
  DEMONSTRATION
```

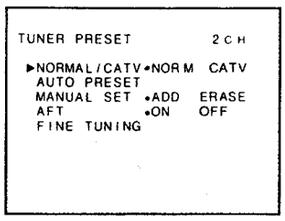
2 Move cursor to TUNER PRESET.

```
MENU

  AUTO MENU
  AUTO REPEAT
  MODE SET
▶TUNER PRESET
  FUNCTION MEMORY
  DEMONSTRATION
```

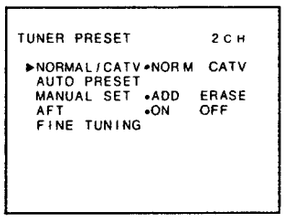
3 Press **EXECUTE**.
The TUNER PRESET display appears.

```
TUNER PRESET                2CH

  NORMAL/CATV •NORM  CATV
  AUTO PRESET
▶MANUAL SET  •ADD   ERASE
  AFT        •ON    OFF
  FINE TUNING
```

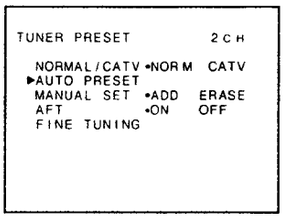
4 Move cursor to NORMAL/CATV.



5 Move dot to NORM to preset VHF and UHF channels.
Move dot to CATV to preset cable TV channels.
The lowest channel number appears.
NORM: 2
CATV: 1



6 Move cursor to AUTO PRESET.



7 Press **EXECUTE**.
Receivable channels are automatically preset in numerical sequence.
When no more channels can be found, the presetting stops and the lowest numbered channel appears.

To Erase Unnecessary Channels

1 **After automatic presetting is over,** follow steps 1 to 3 in "To Preset All Receivable Channels Automatically."

2 Select the channel to be erased in either of the following ways:
- Press **the channel number button(s)** and **ENTER**.
- Press the **CHANNEL function button** to light the indicator and turn **JOG**.
  Turn it clockwise for higher numbered channels; counterclockwise for lower numbered channels.

3 Move cursor to MANUAL SET and select ERASE.

4 Press **EXECUTE**.
When scanning the channels, the erased channel is skipped.

Repeat steps 2 and 3 for other channels to be erased before pressing **EXECUTE**.

To Resume Erased Channel or Add a New Channel

1 Follow steps 1 to 3 in "To Preset All Receivable Channels Automatically."

2 Select the channel to be added with **the channel number button(s)** and **ENTER**.

3 Move cursor to MANUAL SET and select ADD.

4 Press **EXECUTE**.
When scanning the channels, the added channel appears.

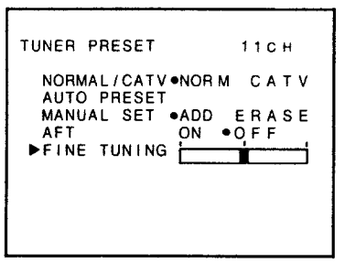
Repeat steps 2 and 3 for other channels to be added before pressing **EXECUTE**.

Fine-tuning a Received Channel

Normally the AFT (Auto Fine Tuning) function works and the VCR automatically tunes the received channels. If the picture of a received channel is distorted due to signal interference, fine-tune manually.

1 Follow steps 1 to 3 on page 32.

2 Move cursor to FINE TUNING.
The fine tuning indicator appears.



3 Fine-tune with ▶ or ◀ to get a clear picture.
If you cannot get a better picture, move cursor to AFT and select ON.

4 Press **EXECUTE.**

About the FINE TUNING indicator
The FINE TUNING indicator shows the operable extent of the fine tuning.
- When the VCR is receiving a broadcast in the best condition, the indicator is at the center or one space right or left of the center.
- Even if the VCR is receiving the broadcast in the best condition, it may happen that the indicator is not at the center.
- When the VCR is receiving input signal from a video game, the indicator may be off the center even though the VCR is receiving it in the best condition.

Cable TV Channel Assignment

Cable TV systems use letters or numbers to designate the channels. To tune-in a CATV channel, refer to the chart below which shows the CATV channel numbers on this VCR and the corresponding CATV channels. Note that the channel number assignment shown in the chart may not correspond to the channel number used by your local cable company. Check with your local cable TV company for more information on the available channels.

Number on this VCR	1	2	...	13	14	15	16	17	18
Corresponding CATV channel	A-8	2	...	13	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31	32
F	G	H	I	J	K	L	M	N	O	P	Q	R	S

33	34	35	36	37	...	94	95	96	97	98	99
T	U	V	W	W+1	...	W+58	A-5	A-4	A-3	A-2	A-1

100	...	125
W+59	...	W+84

Cable TV services may vary from area to area. This VCR is designed to correspond to the Standard cable system but is capable of receiving the HRC*1 or IRC*2 system in optimum conditions.

***1 HRC (Harmonic Related Carriers)**
All channels except for 5 and 6 are 1250 kHz lower than the Standard cable system. Channel 5 and 6 are 750 kHz higher than the Standard cable system.

***2 IRC (Incremental Related Carriers)**
All channels except for 5 and 6 are the same as the Standard cable system. Channels 5 and 6 are 2000 kHz higher than the Standard cable system.

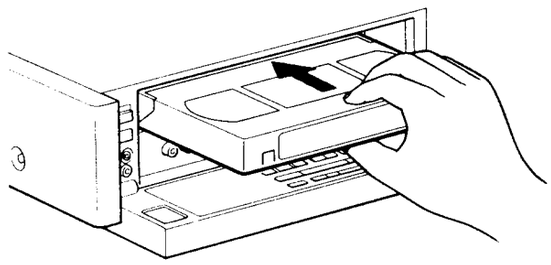
Note on the HRC and IRC cable systems
When this VCR is receiving a channel in the HRC or IRC cable system which differs in frequency from the Standard cable system, the FINE TUNING indicator may be off center even if the signals are received in good condition.

Note
Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

Handling Video Cassettes

Inserting a Cassette

Insert a cassette fully into the compartment by slowly pressing its center with the arrow indication facing upwards.
Even if the power is turned off, the power will be automatically turned on.

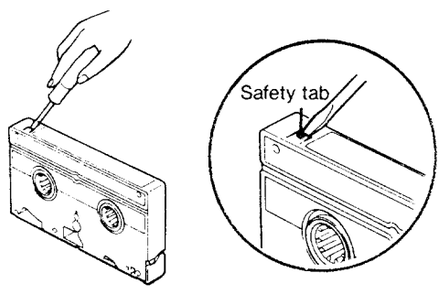


Ejecting a Cassette

Press ▲ **EJECT** to eject the cassette. As long as the AC power cord is connected to the wall outlet, you can eject the cassette even when the power of the VCR is turned off. After the tape is ejected, the power is automatically turned off.

To Avoid Erasing Previously Recorded Video Contents

When you make a new recording on a previously recorded cassette, the previous recording is automatically erased. To avoid unintentional erasure of previously recorded video sources, break off the safety tab on the cassette.
To re-record on the cassette, cover the slot where the safety tab used to be located with plastic tape.



Maximum Recording Time of a Tape

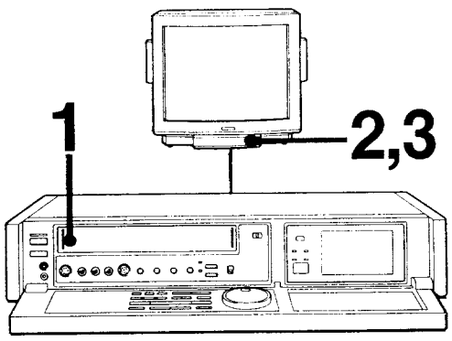
Recording in the SP or EP mode is possible with this VCR.
When recording, select the desired recording time (SP or EP) with **REC MODE** on the Remote Commander or the VCR.
During playback, the VCR automatically detects the recording format, and then plays it back in the appropriate mode.
An SP Tape runs three times as fast as an EP tape does.
In playback mode, LP mode is possible. But you cannot record in LP mode.
Refer to the chart below for the recording/playback time available in each mode.

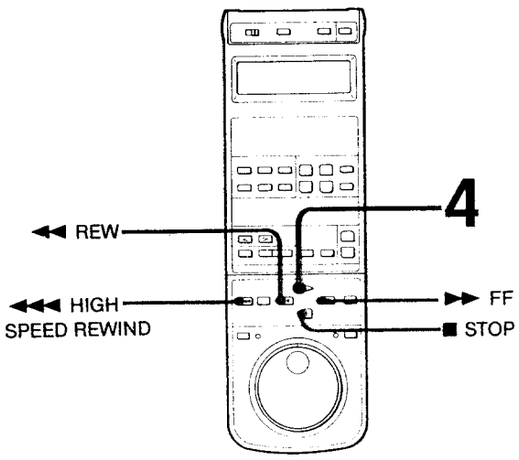
REC MODE setting	Cassette tape			
	T-160	T-120	T-60	T-30
SP (standard)	2 hr. 40 min.	2 hr.	1 hr.	30 min
EP	8 hr.	6 hr.	3 hr.	1 hr. 30 min.

Note on tapes recorded in LP mode
Playback of tapes recorded in LP mode is possible with this VCR. However, playback in modes other than normal speed forward is not guaranteed.

Playing a Tape

Basic Playback





1 Insert a cassette.

2 Turn on the TV.

3 **If your TV is equipped with video/audio input jacks**
Select the input for the VCR.
If your TV is not equipped with video/audio input jacks
Select the channel for the VCR (3 or 4).

4 Press ► **PLAY.**

To stop playback, press ■ **STOP.**

To advance the tape rapidly, press ►► **FF.**

To rewind the tape, press ◄◄ **REW.**

To rewind the tape at high speed, press ◄◄◄ **HIGH SPEED REW.**

If you insert the cassette with its safety tab removed, playback starts automatically.

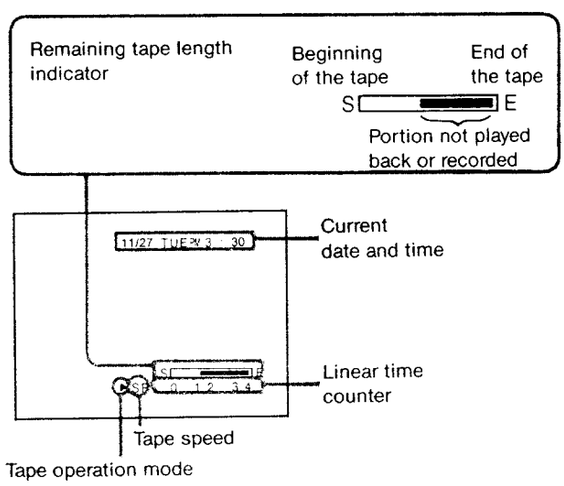
When the tape is played back to the end, the tape is automatically rewound to the beginning (auto rewind). The power remains on.

About the Data Screen

The data screen information is displayed on the screen.
To erase the data screen display, press **DATA SCREEN** on the Commander.
To erase only the current date and time, see page 29.

Notes
- If your TV is equipped with video/audio input jacks, the data screen is not displayed unless the TV is connected to MONITOR OUT on this VCR.
- When the VCR is in slow motion or still playback mode, the data screen does not appear.

Notes on the remaining tape length indicator
- The displayed remaining tape length is not precise. Use it only as an approximate reference.
- When you insert a short tape such as T-20, T-30 or a nonstandardized commercially available tape, this indicator may not function correctly.



Various Playback Modes

To obtain a still picture
During playback mode press ❚❚/▶❚ **PAUSE/STILL** on the VCR or ❚❚ **PAUSE** on the Commander.
To return to normal playback, press ▶ **PLAY** or ❚❚/▶❚ **PAUSE/STILL** or ❚❚ **PAUSE**.
When the pause mode lasts for more than 5 minutes, the VCR re-enters the playback mode automatically.

To search for a particular scene — Picture search
During playback mode, press ◀◀ **REW** or ▶▶ **FF**.
While the button is pressed, a high speed picture without sound appears on the TV screen.
When you release the button, the VCR returns to the previous mode.

To search for a particular scene — Locked picture search
During the playback mode, press ⏪ **SEARCH** or ⏩ **SEARCH** on the Commander.
A high speed picture in forward or reverse appears on the screen even when the button is released. To resume normal playback, press ▶ **PLAY**.

To watch a slow motion playback
During playback mode, press **SLOW** on the Commander.
+ : To increase the speed
– : To decrease the speed

To view the picture momentarily while the VCR is in the fast-forward or rewind mode without picture on the TV screen
During fast-forward mode, press ▶▶ **FF**.
During rewind mode, press ◀◀ **REW**.
You can see a high speed playback picture while the button is pressed. Release the button to return to the previous mode.

To view a playback picture at 2 times the normal speed
During playback mode, press × 2 on the Commander.
Press ▶ **PLAY** to resume normal playback.

To view reverse direction playback, slow and × 2 picture
During forward playback of the desired mode, press <(◀ ❚❚) on the Commander. Press ▶ **PLAY** or> (❚❚ ▶) to resume forward playback.

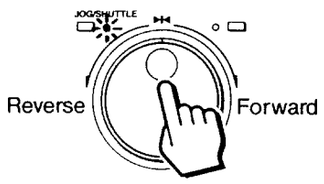
To watch a frame-by-frame picture
During still mode, press ❚❚ ▶ to advance the picture one frame. Press ◀ ❚❚ to reverse the picture one frame. Each press of ◀ ❚❚ or ❚❚ ▶ moves the picture one frame. Press ▶ **PLAY** to resume normal playback.

Various Playback Modes Using JOG/SHUTTLE

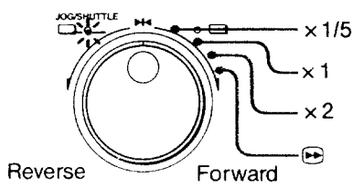
1 Press ▶ **PLAY**.

2 **If you use the Remote Commander**
Press the **JOG/SHUTTLE** function button.
The VCR enters the still picture mode.

3 **Using the JOG dial**
Playback speed varies according to the speed at which you turn the dial. (frame-by-frame, slow, × 1)



Using the SHUTTLE ring
Turn the ring and hold it. Playback speed can be selected according to the turning angle.



4 Releasing **JOG** or **SHUTTLE** makes a still picture.
To resume normal playback, press ▶ **PLAY**.

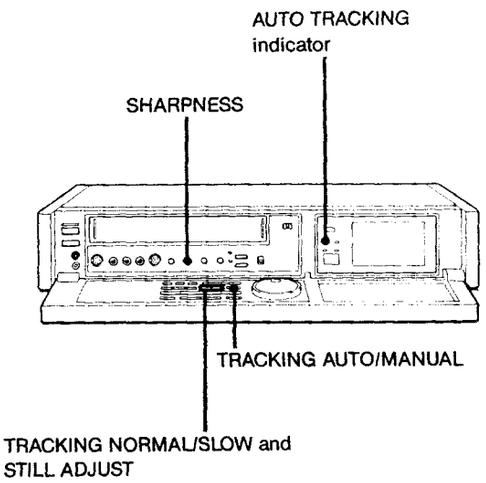
If streaks or noise appear in a slow motion picture
Adjust **TRACKING NORMAL/SLOW and STILL ADJUST** inside the front panel of the VCR.
You can adjust the picture more easily at speeds closer to normal playback.

If the picture appears to shake in the still mode
Adjust **TRACKING NORMAL/SLOW and STILL ADJUST** until the picture stabilizes.

If a noise band appears on the top or bottom of the picture in the still mode
Change to the slow motion mode, and then adjust **TRACKING NORMAL/SLOW and STILL ADJUST.**

Notes
- When the tape recorded in the LP mode is played back in one of various playback modes, the noise may appear.
- Streaks or noise cannot be eliminated completely in reverse playback or reverse slow motion playback mode.

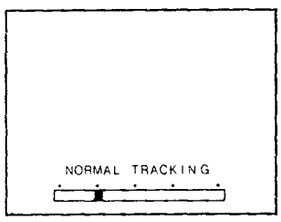
Adjusting the Picture during Normal Playback



Automatic tracking function
The tracking condition is automatically adjusted on this VCR. The AUTO TRACKING indicator blinks while the VCR is searching for the best tracking condition and lights when optimum playback picture is obtained. The automatic tracking control is activated in the following conditions:
- when the cassette is inserted and played back.
- when the recording mode on the playback tape is changed.
- when the picture is distorted by scratches etc. on the tape.
- when the AUTO TRACKING indicator is turned on by pressing **TRACKING AUTO/MANUAL** after the picture is adjusted manually. (See Manual tracking adjustment.)

Notes
- Auto tracking adjustment may be impossible and the tracking indicator does not appear on the TV screen when the recording condition of the tape is poor.
- During auto tracking adjustment, streaks or noise may appear.
- If the TV or color monitor is not connected to the VHF/UHF OUT connector or the MONITOR OUT AUDIO/VIDEO jacks, on-screen display cannot be obtained.
- When **DATA SCREEN** on the Commander is pressed, the tracking indicator does not appear on the TV screen.

Manual tracking adjustment
If streaks or snow appear during normal playback, adjust the picture with **TRACKING NORMAL/SLOW and STILL ADJUST ▼/▲.**
The tracking indicator appears on the TV screen and the AUTO TRACKING indicator on the VCR is turned off.
Press either ▼ or ▲ to get the optimum picture.



Press both ▼ and ▲ buttons simultaneously to return to the tracking center position.

Adjusting the sharpness
Turn **SHARPNESS** toward SHARP to get a sharper picture. Turn it toward SOFT to get a softer picture.

Selecting the Monitor Sound

You can play back tapes on which stereo sound programs or bilingual programs are recorded on the VCR.

Note
When you play back a tape recorded in monaural, the sound is heard in monaural regardless of the setting of **AUDIO MONITOR**.

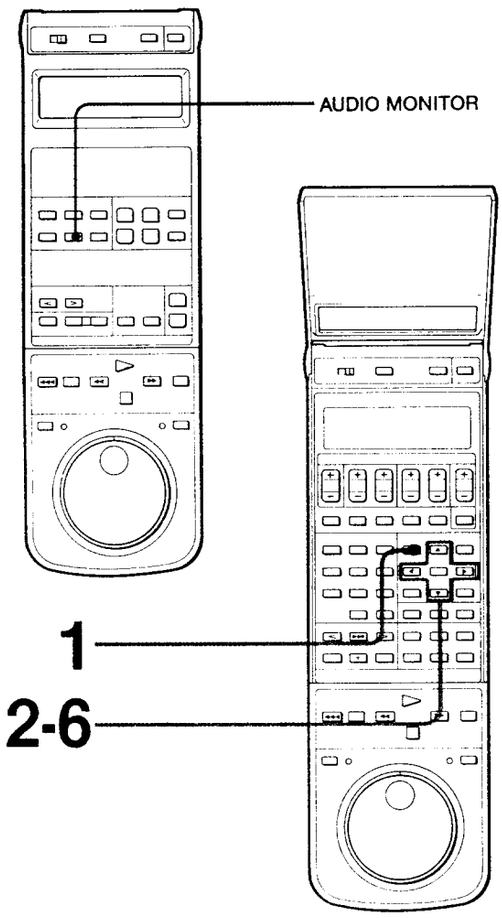
Press **AUDIO MONITOR** to select the desired sound. Each press of the button changes the display.

Display	Sound to be heard	
	Stereo tape	**Bilingual tape**
STEREO	Stereo	Left and right channels
MAIN/L	Left channel	Left channel
SUB/R	Right channel	Right channel
None	Monaural (on normal audio track)	Sound on normal audio track (SAP)

Listening to the Sounds on the Hi-fi Track and Normal Track Mixed

You can hear the sounds recorded on the hi-fi video track and the normal audio track simultaneously. This allows you to listen to an audio-inserted tape.

Use ▲ and ▼ to move cursor.
Use ▶ and ◀ to move dot.



1 Press **MENU**.
The main MENU appears.

2 Move cursor to MODE SET.

3 Press **EXECUTE**.
If the MODE SET [PAGE 1] menu appears, move cursor to NEXT PAGE and press **EXECUTE**.
The MODE SET [PAGE 2] menu is displayed.

```
MODE SET [PAGE 2]

▶TIMER TITLE     •ON  OFF
 TIMER REC-REW   ON  •OFF
 AUDIO MIX       ON  •OFF
 SIMUL AUDIO IN •L1   L2
 LANC MODE          M  •S
 LINE IN1 VIDEO     S  •STD
 PREVIOUS PAGE
```

4 Move cursor to AUDIO MIX.

5 Move dot to ON.

```
MODE SET [PAGE 2]

 TIMER TITLE     •ON  OFF
 TIMER REC-REW   ON  •OFF
▶AUDIO MIX       •ON  OFF
 SIMUL AUDIO IN •L1   L2
 LANC MODE          M  •S
 LINE IN1 VIDEO     S  •STD
 PREVIOUS PAGE
```

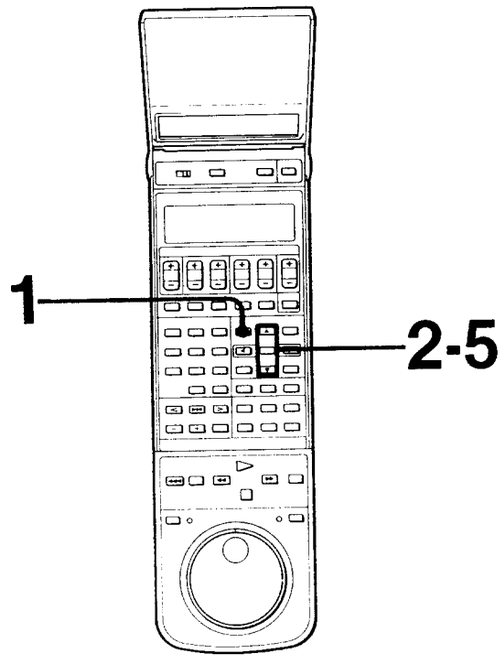
6 Press **EXECUTE** to return to the original screen.

Note
When you set AUDIO MIX to ON, the **AUDIO MONITOR** button does not function.
Reset to OFF after listening to the sound in AUDIO MIX mode.

Presetting a Sequential Tape Operation — AUTO MENU

By assigning the desired tape operation combination using the menu system, a tape operation of several steps is automatically performed.

Use ▲ and ▼ to move cursor.



1 Press **MENU** when the tape is in stop mode.
The main MENU appears.

2 Move cursor to AUTO MENU.

3 Press **EXECUTE.**
The AUTO MENU appears.

```
AUTO MENU

▶PLAY-REW-POWER OFF
 GO TO ZERO-STOP
 GO TO ZERO-PLAY
 GO TO REC START - PLAY
 REW-POWER OFF
 REW-EJECT-POWER OFF
 REW-PLAY
 REW-TIMER REC
```

4 Move cursor to the desired tape operation.

5 Press **EXECUTE.**
The selected tape operation starts and the indication is superimposed on the screen for several seconds. The AUTO indicator lights in the display window during AUTO MENU operation.

To return to the original screen without executing the operation
Press **MENU.**

Even if the power is turned off
The cursor remains in its most recent position.

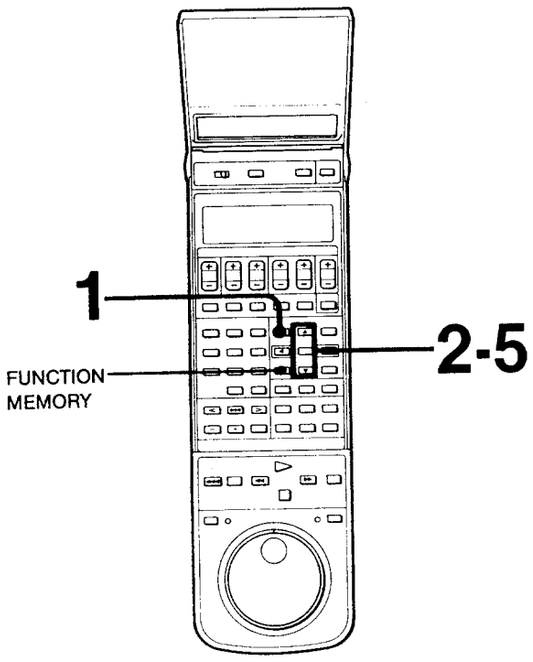
Note on "GO TO REC START – PLAY"
If you perform the following operations, the memory of the recording start position will be erased and "GO TO REC START – PLAY" is not operable.
- When you press **COUNTER RESET.**
- When you eject the cassette.
- When you press ◀◀◀ **HIGH SPEED REWIND.**

Note on REW – EJECT – POWER OFF
If the VCR is installed in the video rack with the door closed, the cassette may not be ejected. Turn off the power to stop operation.

Storing a Desired Tape Operation to the FUNCTION MEMORY Button

One of the tape operations in AUTO MENU can be stored to the FUNCTION MEMORY button on the Commander. You can make the VCR enter the desired tape operation only by pressing **FUNCTION MEMORY**.

Use ▲ and ▼ to move cursor.



Note
This function is operable only when the tape is in stop mode.

1 Press **MENU**.
The main MENU appears.

2 Move cursor to FUNCTION MEMORY.

3 Press **EXECUTE**.
The FUNCTION MEMORY menu appears.

```
FUNCTION MEMORY

  PLAY-REW-POWER OFF
  GO TO ZERO-STOP
  GO TO ZERO-PLAY
  GO TO REC START-PLAY
  REW-POWER OFF
  REW-EJECT-POWER OFF
  REW-PLAY
▶[AUTO MENU]
```

4 Move cursor to the desired tape operation.

5 Press **EXECUTE** to return to the original screen.

Whenever you press **FUNCTION MEMORY** on the Commander, the stored tape operation starts automatically.

What does each AUTO MENU operation mean?

PLAY – REW – POWER OFF
The tape is played back to its end and rewound to its beginning. Then the power is turned off.

GO TO ZERO – STOP
The tape is fast-forwarded or rewound to around the counter zero point, and stops. See "Tape Return/Tape Return Play" (page 52) for detailed operation.

GO TO ZERO – PLAY
The tape is fast-forwarded or rewound to around the counter zero point, and is played back. See "Tape Return/Tape Return Play" (page 52) for detailed operation.

GO TO REC START – PLAY
The tape is fast-forwarded or rewound to the starting point of the recording, and is played back.

REW – POWER OFF
The tape is rewound to its beginning and the power is turned off.

REW – EJECT – POWER OFF
The tape is rewound to its beginning, and the cassette is ejected. Then the power is turned off.

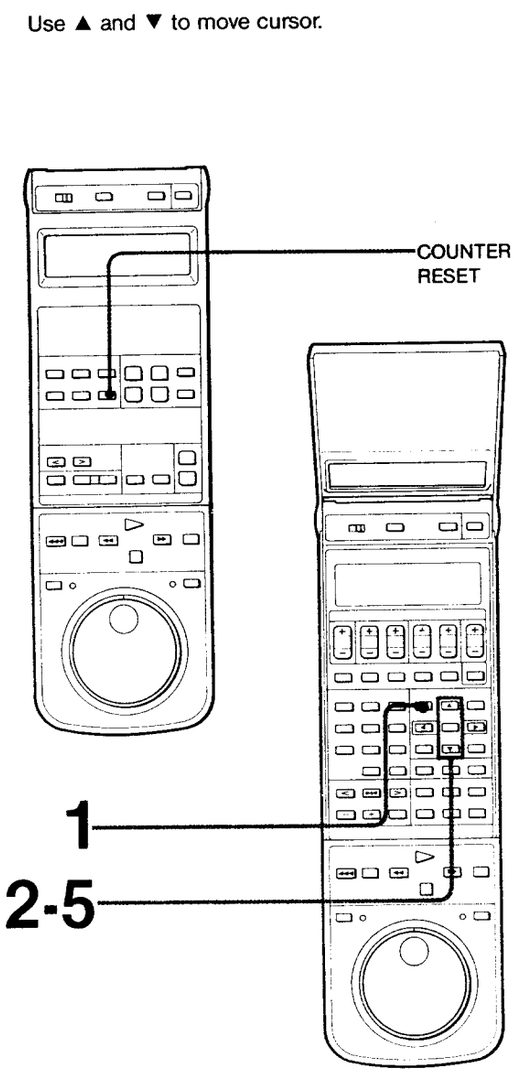
REW – PLAY
The tape is rewound to its beginning and is played back.

REW – TIMER REC
The tape is rewound to its beginning and the VCR enters the standby mode for timer recording when a timer recording has been preset.

[AUTO MENU]
The AUTO MENU is displayed immediately after you press **FUNCTION MEMORY**, providing a short cut to the AUTO MENU.

Playing Back a Tape Repeatedly — AUTO REPEAT

You can set the VCR to repeat playback of a certain portion of the tape.



1 Press **MENU** while the tape is in stop mode.
The main MENU appears.

2 Move cursor to AUTO REPEAT.

3 Press **EXECUTE**.
The AUTO REPEAT menu appears.

```
AUTO REPEAT

▶TAPE START - TAPE   END
 TAPE START - VIDEO  END
 TAPE START - COUNTER  0
 COUNTER 0  - TAPE   END
 COUNTER 0  - VIDEO  END
```

4 Move cursor to the item you want to play back repeatedly.

5 Press **EXECUTE**.
The VCR rewinds or advances the tape rapidly to the start point of the assigned repeat portion, and repeats playback of that portion **five times**.
Then the VCR rewinds the tape to the start point.
The AUTO indicator lights in the display window during repeat playback.

To stop playback
Press ■ **STOP** on the VCR or the Commander.

If you press any tape operation button during repeat playback
The auto repeat function is released.

What does each AUTO REPEAT menu mean?

TAPE START – TAPE END
The VCR repeats playback from the beginning to the end of the tape.

TAPE START – VIDEO END
The VCR repeats playback from the beginning of the tape to the end of the recorded portion.

TAPE START – COUNTER 0
The VCR repeats playback from the beginning of the tape to the counter zero point.

COUNTER 0 – TAPE END
The VCR repeats playback from the counter zero point to the end of the tape.

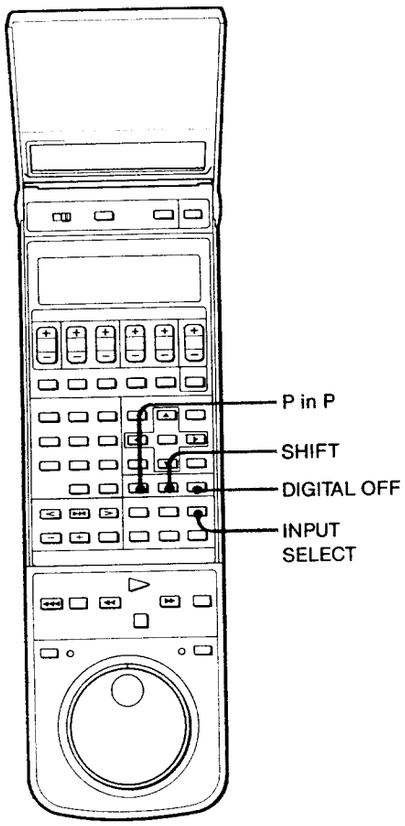
COUNTER 0 – VIDEO END
The VCR repeats playback from the counter zero point to the end of the recorded portion of the tape.

When you assign "COUNTER 0"
Before activating auto repeat function, press **COUNTER RESET** to set the tape counter to 0H00M00S at the desired point.

Note on "VIDEO END"
The VCR normally detects a blank of about 10 seconds on the tape as "VIDEO END". However, for about 30 seconds from the beginning of the tape, the VCR does not do this. Accordingly, the auto repeat function does not work correctly in the following cases.
- When there is a blank of more than 10 seconds in the assigned repeat portion (more than 40 seconds at the beginning of the tape).
- When there is a blank of less than 10 seconds after the recorded portion to be played back repeatedly.

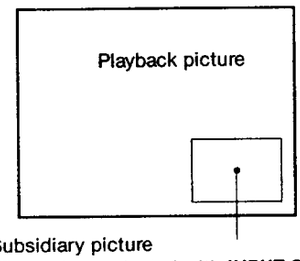
When you assign the menu including "VIDEO END"
If the tape is recorded to its end, auto repeat function does not work. Assign the menu including TAPE END.

Inserting Another Subsidiary Picture in the Playback Picture — P in P



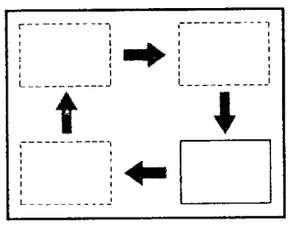
Press **P in P** during playback.

If you select TUNER with **INPUT SELECT**, you can watch the TV picture on the subsidiary screen.



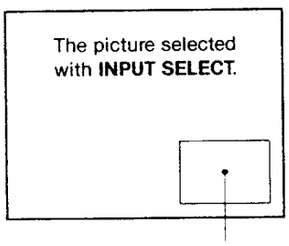
Subsidiary picture
(The picture selected with **INPUT SELECT**)

To change the position of the subsidiary picture
Press **SHIFT**.
Each press change the position of the subsidiary picture as follows.



Notes
- If your TV is connected to LINE OUT on this VCR, the P in P function cannot be activated.
- When the playback picture is displayed in the main screen, if the no recorded portion is played back at speed except the normal one, the subsidiary picture will not be displayed.

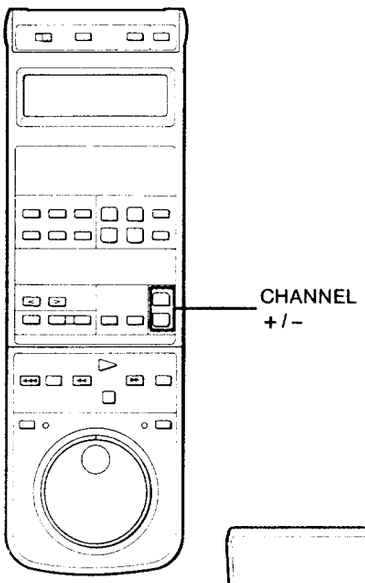
To invert the position of the subsidiary picture
Press **P in P** again.

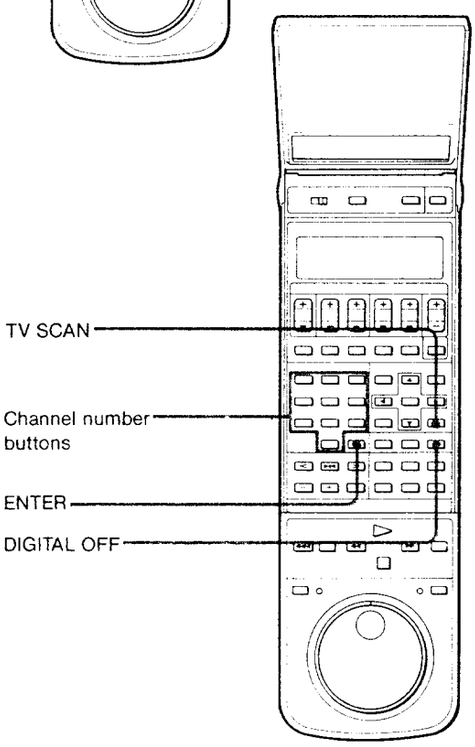


Subsidiary picture
(Playback picture)

To turn off the subsidiary picture
Press **DIGITAL OFF**.

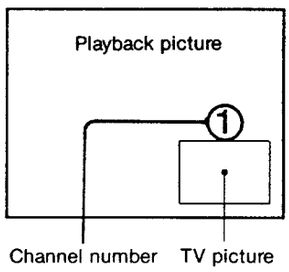
Watching TV Channel in Succession — TV Scan





You can watch each TV channel for a few seconds in the preset order during playback.

Press **TV SCAN** during playback.



After all the preset channels are displayed, the first preset channel will appear again.

To watch the desired channel in the subsidiary screen
Press the channel number button and **ENTER** or **CHANNEL +/–**.

To stop the TV scan
Press **CHANNEL +/–**, and then press **DIGITAL OFF**.

To turn off the subsidiary picture after the TV scan is completed
Press **DIGITAL OFF**.

> **Note**
> If your TV is connected to LINE OUT on this VCR, the TV scan function cannot be activated.

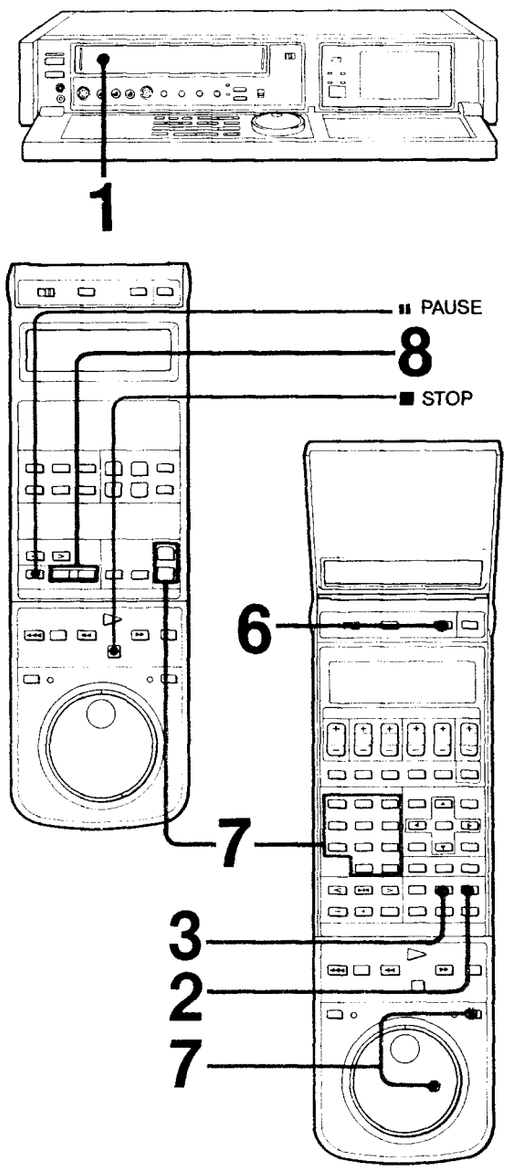
Recording TV Programs

Before You Begin

- Make sure that the connections and preparations are complete.
- Check that the REC LEVEL controls are set to the 5 position.

Caution
Television programs, films, video tapes and other materials may be copyrighted.
Unauthorized recording of such material may be contrary to the provisions of the copyright laws.
Also, use of this recorder with cable television transmission may require authorization from the cable television transmission and/or program owner.

Operation



To stop recording, press ■ **STOP.**

To stop the tape for a moment, press II **PAUSE.**
To resume recording, press II **PAUSE** again.
During recording, if the pause mode lasts for more than approximately 5 minutes, the VCR enters the stop mode automatically.

When the tape reaches its end
The tape is automatically rewound to the beginning and the power remains on.

1 Insert a cassette.
The VCR is turned on automatically (Auto power on).

2 Press **INPUT SELECT** to display the TUNER indicator in the display window.

3 Select the recording tape speed, SP or EP, with **REC MODE**.

4 Turn on the TV.

5 **If your TV is equipped with video/audio input jacks**
Select the input for the VCR.
If your TV is not equipped with video/audio input jacks
Select the channel for the VCR (3 or 4.)

6 Press **ANT TV/VTR** so that the VTR indicator lights. (Necessary only when the VCR and the TV are connected via the VHF antenna terminal.)

7 Select the channel to be recorded in any of the following ways:
- Press **CHANNEL** + / −.
- Press the **channel number button(s)** and **ENTER**.
- Press the **CHANNEL function button** to light the indicator and turn JOG.
  Turn it clockwise for higher numbered channels; counterclockwise for lower numbered channels.

8 Press the two ● **REC** buttons simultaneously. (On the VCR press ● **REC**.)
The REC indicator lights and recording begins.

What does the VTR indicator appearing in the display window indicate?

VTR indicator	What is shown
Lit	TV program selected by the VCR or playback picture
Unlit	TV program selected by a TV

To Stop Recording Momentarily at an Unwanted Scene

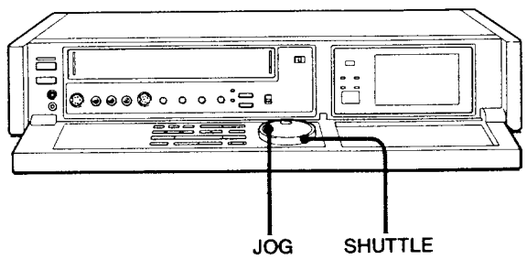
You can stop recording when an unwanted scene appears and then resume recording smoothly from a desired scene.

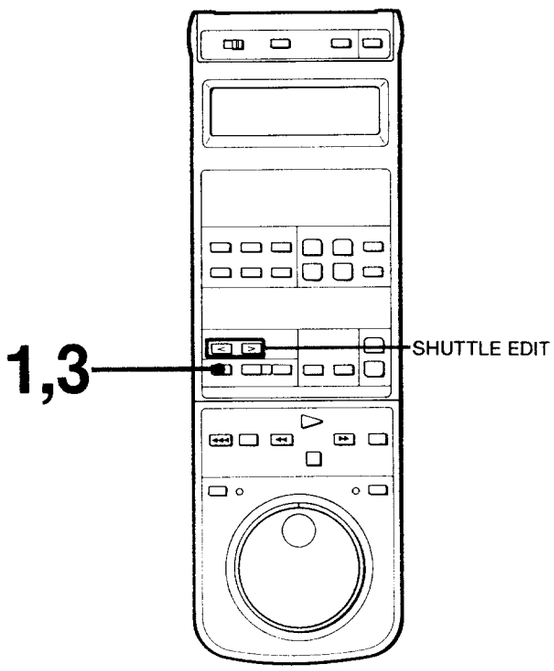
1 Press ▮▮ **PAUSE** when an unwanted scene appears.
The VCR enters recording pause mode.

2 Press ▮▮ **PAUSE** again at the point where you want to continue recording.

To Cut Out an Unwanted Scene by Recording Over It

If you have started recording unwanted scene, you can return the tape to the start of that scene and make the VCR enter recording pause mode.



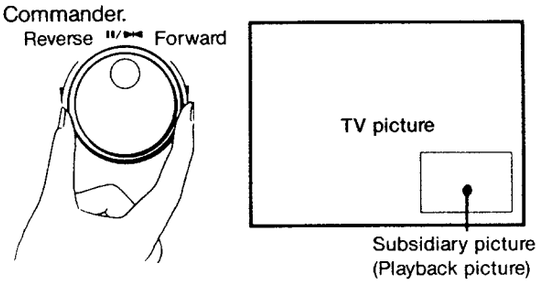


How to use JOG/SHUTTLE during playback or SHUTTLE EDIT in the playback pause mode
Use this function when the new picture should be recorded over the unwanted scene of the recorded tape.

1 Locate the desired scene with from where you want to re-record **JOG/SHUTTLE** or **SHUTTLE EDIT**. (When you release them, the VCR enters the playback pause mode.)
2 Press ● **REC** to set the VCR to the recording pause mode.
3 Press ▮▮ **PAUSE** at the desired scene to start recording.

1 Press ▮▮ PAUSE to set the VCR to the recording pause mode at an unwanted scene.

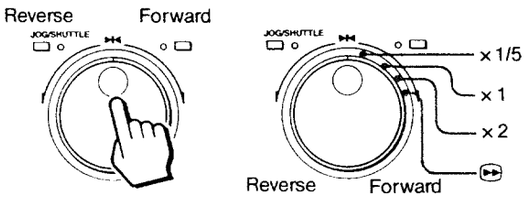
2 Rewind the tape to the desired point with **JOG/SHUTTLE** on the VCR or **SHUTTLE EDIT** on the Commander.



When you release **JOG/SHUTTLE** or **SHUTTLE EDIT**, the VCR resumes the recording pause mode.
If you want to invert the playback picture and the TV pictures, release **JOG/SHUTTLE** or **SHUTTLE EDIT** and then press **P in P** while the subsidiary picture is displayed.

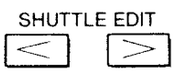
3 Press ▮▮ **PAUSE** at the desired scene.
Recording starts again.

How to use JOG/SHUTTLE
Use JOG/SHUTTLE during playback or in recording pause mode. (JOG/SHUTTLE on the Commander does not function in recording pause mode.)



Release JOG/SHUTTLE to resume recording pause or still picture mode.

How to use SHUTTLE EDIT on the Commander
Use the buttons in playback pause or recording pause mode.
Keep < pressed to obtain 1/5 playback picture in reverse.
Keep > pressed to obtain 1/5 playback picture.



Release the button to resume playback or recording pause mode.

To Record a Program without Watching the TV

Turn off the power of the TV or color monitor.
Recording continues.

Watching One TV Program While Recording Another

When the TV is connected only to VHF/UHF OUT

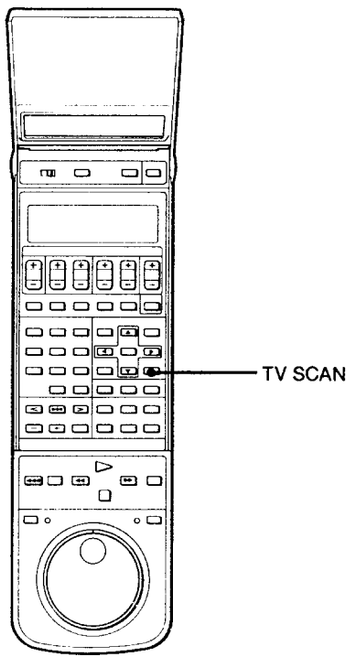
1 Press **ANT TV/VTR** so that the VTR indicator goes off.

2 Select the channel you want to watch on the TV.

When the TV is connected to MONITOR OUT
Select the tuner input and choose the channel you want to watch on the TV.

> **Note**
> If you use a color monitor, you cannot view another program during recording unless the monitor has an internal TV tuner.

Watching TV Channel in Succession — TV Scan

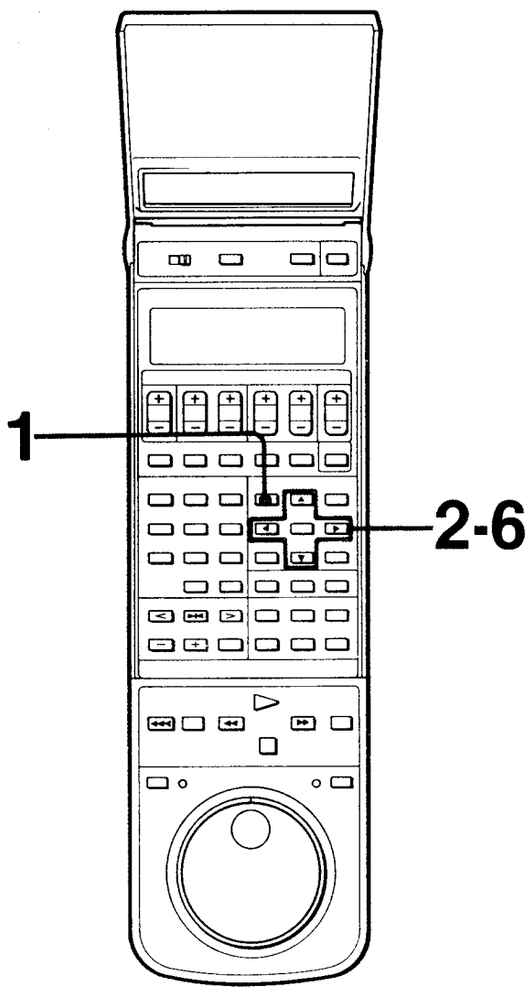


When you view the TV program, press **TV SCAN**.
You can watch each TV channel for a few seconds in the preset order.

Recording Multichannel TV Sound (MTS) Broadcasts

To record a stereo broadcast
When a stereo broadcast program is received, the STEREO indicator appears in the display window. The stereo program is automatically recorded in stereo.
If a stereo program is noisy, set AUTO STEREO to OFF in the MODE SET menu. The sound is heard in monaural but the noise is reduced.

Use ▲ and ▼ to move cursor.
Use ► and ◄ to move dot.



1 Press **MENU**.
The main MENU appears.

2 Move cursor to MODE SET.

```
MENU

  AUTO MENU
  AUTO REPEAT
▶MODE SET
  TUNER PRESET
  FUNCTION MEMORY
  DEMONSTRATION
```

3 Press **EXECUTE**.
If the MODE SET [PAGE 2] menu appears, move cursor to PREVIOUS PAGE and press **EXECUTE**.
The MODE SET [PAGE 1] menu is displayed.

```
MODE SET [PAGE 1]

▶AUTO ANT SEL •ON  OFF
 AUTO STEREO  •ON  OFF
 CLOCK DISPLAY•ON  OFF
 DIMMER         ON •OFF
 NORMAL AUDIO •MAIN SAP
 BACK COLOR   •BL GR PK
 NEXT PAGE
```

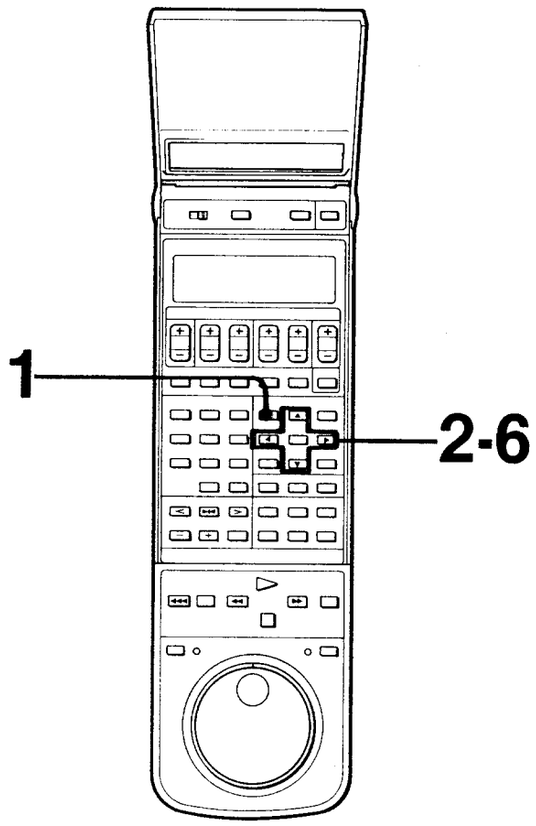
4 Move cursor to AUTO STEREO.

5 Move dot to OFF.

```
MODE SET [PAGE 1]

 AUTO ANT SEL •ON  OFF
▶AUTO STEREO   ON •OFF
 CLOCK DISPLAY•ON  OFF
 DIMMER         ON •OFF
 NORMAL AUDIO •MAIN SAP
 BACK COLOR   •BL GR PK
 NEXT PAGE
```

6 Press **EXECUTE** to return to the original screen.

To record SAP (Second Audio Program) broadcast
Normally, set NORMAL AUDIO to MAIN in the MODE SET menu. The main sound is recorded on the normal track. To record the SAP sound on the normal audio track, set NORMAL AUDIO to SAP in the MODE SET menu.



1 Press **MENU**.

2 Move cursor to MODE SET.

3 Press **EXECUTE**.
If the MODE SET [PAGE 2] menu appears, move cursor to PREVIOUS PAGE and press **EXECUTE**.
The MODE SET [PAGE 1] menu is displayed.

```
MODE SET [PAGE 1]

▶AUTO ANT SEL  •ON  OFF
 AUTO STEREO   •ON  OFF
 CLOCK DISPLAY •ON  OFF
 DIMMER          ON •OFF
 NORMAL AUDIO  •MAIN SAP
 BACK COLOR    •BL GR PK
 NEXT PAGE
```

4 Move cursor to NORMAL AUDIO.

5 Move dot to SAP.

```
MODE SET [PAGE 1]

 AUTO ANT SEL  •ON  OFF
 AUTO STEREO   •ON  OFF
 CLOCK DISPLAY •ON  OFF
 DIMMER          ON •OFF
▶NORMAL AUDIO MAIN•SAP
 BACK COLOR    •BL GR PK
 NEXT PAGE
```

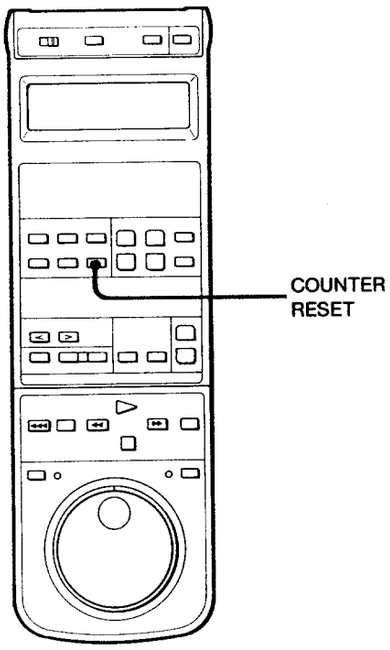
6 Press **EXECUTE** to return to the original screen.

Notes
- When there is no SAP broadcast, select MAIN in step 5. If the SAP is selected, no sound will be recorded on the normal audio track.
- When the VCR and the TV are connected via the VHF antenna terminal, you cannot hear a program in stereo.

To monitor the SAP sound being recorded
Press **AUDIO MONITOR** to light the SAP indicator in the display window.

Use of the Tape Counter

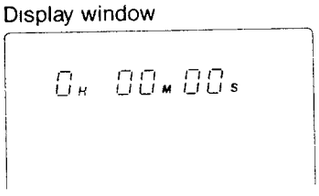
Indexing the Tape Contents



Before starting recording or playback, press **COUNTER RESET** to set the counter to zero. By noting the counter reading at the desired point, you can easily find that point later by referring to the counter.
Use the label on the cassette to list the programs and their counter readings.

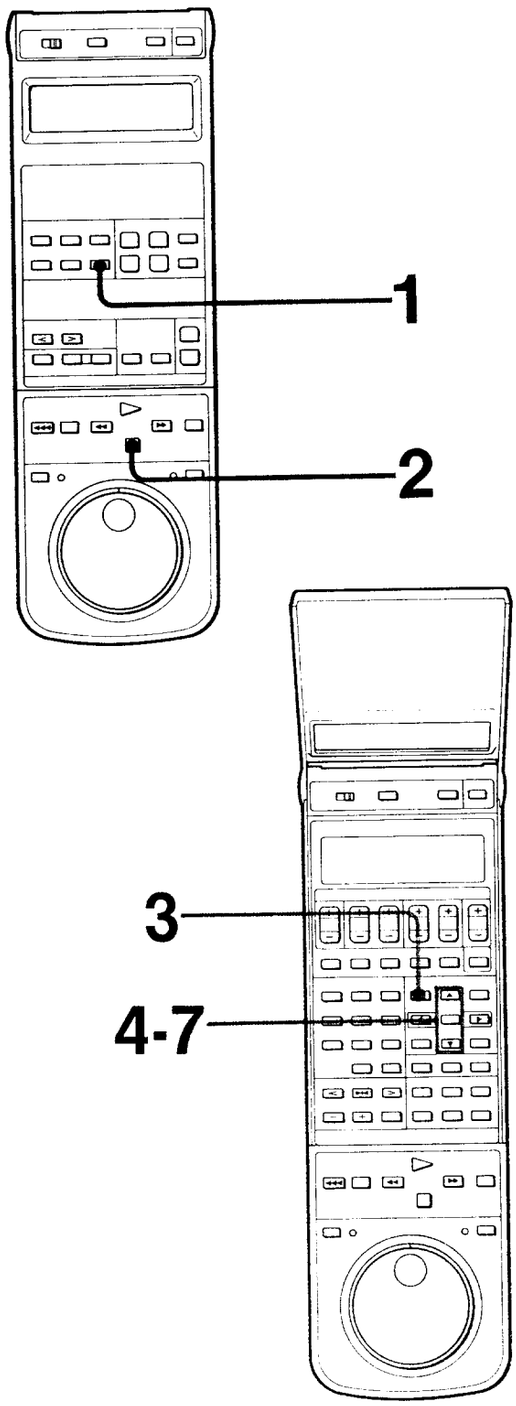
Note on counter reading
Even after the cassette is ejected, the counter reading is retained until a cassette is inserted again. The counter then returns to "0H00M00S".

Display window



Tape Return/Tape Return Play

Tape return
— To search and stop the tape at the counter zero point.

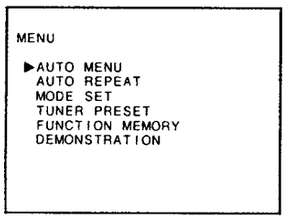


1 During recording or playback, press the **COUNTER RESET** at the point you want to locate later.
The tape counter changes to "0H00M00S".

2 When recording or playback is completed, press ■ **STOP**.

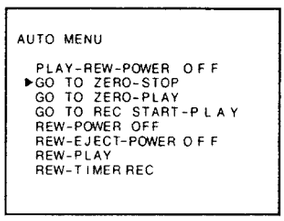
3 Press **MENU**.
The main MENU appears.

4 Move cursor to AUTO MEMU.



5 Press **EXECUTE**.
The AUTO MENU appears.

6 Move cursor to GO TO ZERO – STOP.

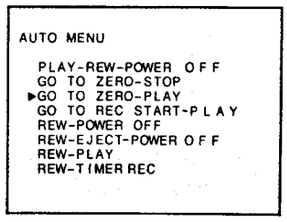


7 Press **EXECUTE**.
The tape is rewound or advanced close to the counter zero point, and stop at the counter zero point.

Tape return play
— To search and playback from the counter zero point

1 Follow steps 1 to 5 in "Tape return" operation.

2 Move cursor to GO TO ZERO – PLAY.



3 Press **EXECUTE**.
The tape is rewound or advanced close to the counter zero point and starts playback.

Notes
- The tape counter does not work on the portions of the tape with no signals recorded.
- The counter zero point may be few seconds ahead or behind the exact time.

Timer Recording

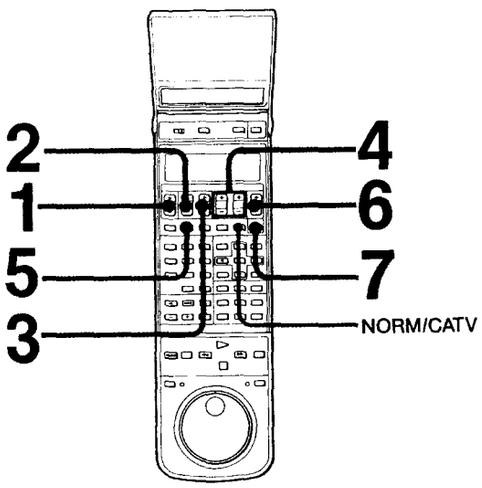
You can preset up to eight recordings as much as one month* in advance.
The recordings can be preset on the LCD window on the Commander, and be transmitted to the VCR. You can check the timer settings on the TV screen.

* **Recording from today to one month later**
  If today is August 31st, you can set the timer to record a program broadcast between today and September 30 (for 31 days).
  If today is January 31st, you can set the timer to record a program broadcast between today and February 28 (for 29 days). A Leap year is automatically calculated.

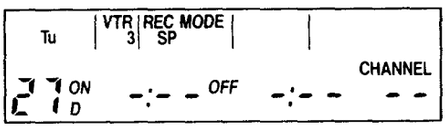
Before You Begin

- The date and clock must be set correctly. (See "Date and Clock Setting.") (page 30)
- Make sure the cassette tape is long enough to record all the programs.
- Be sure that the safety tab on the cassette has not been broken off.
- Set **REC LEVEL** to the 5 position.
- You can preset the timer recording without turning on the VCR.

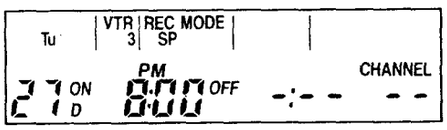
Operation



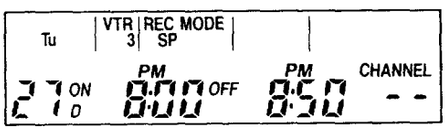
1



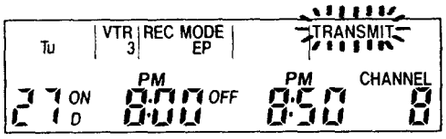
2,3



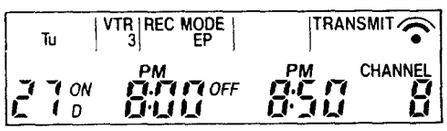
4



5,6



7



8

Example: To record channel 8 from 8:00 PM to 8:50 PM on Tuesday, November 27, 1990 in EP mode.

1 Open the cover of the Commander and press **D** until 27 appers.
The day of the week, Tu (Tuesday), is auromatically set.

2 Set the recording start hour with **TURN ON H**.

3 Set the recording start minute with **TURN ON M**.

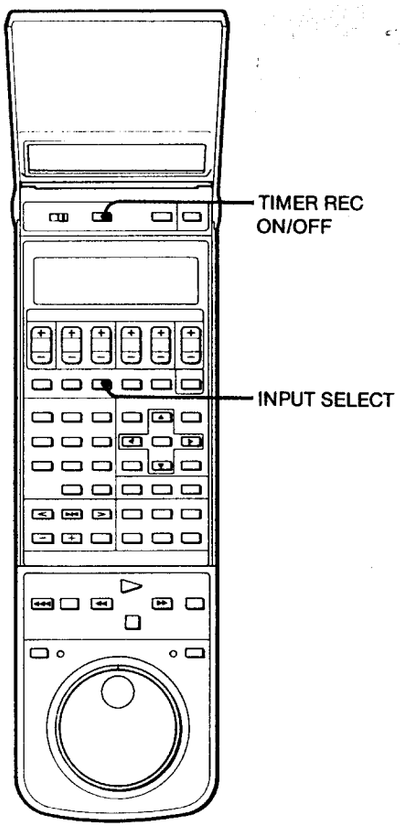
4 Set the recording end hour and minute with **TURN OFF H** and **M** referring to step 2 and 3.

5 Press **REC MODE** to set the recording tape speed to EP.

6 Set the channel with the **CHANNEL** + / – button.
If you want to set cable TV channels, press **NORM/CATV** on the Commander to display the CATV indicator.
In this case, be sure to select CATV in the TUNER PRESET menu. (See page 33.)
The TRANSMIT indicator blinks to indicate that all of the items are entered.

7 Point the Commander to the VCR and press **TRANS** (transmit).
With a beep sound, the preset time appears on the display window of the VCR and the program list appears on the TV screen for a few seconds. The VCR is turned off and enters the timer recording standby mode.

8 Close the cover of the Commander.
The LCD display on the Commander indicates the date and clock setting.
The VCR starts recording at the preset time, and turns off after recording ends.



To set other programmes
Repeat steps 1 to 7 in "Operation" before step 8.

To stop timer recording
Press TIMER REC ON/OFF.

Note
If you close the cover of the Commander before pressing **TRANS**, the settings on the Commander are erased.

To record from equipment connected to the LINE IN 1 or LINE IN 2
Press **INPUT SELECT** anytime in step 1 to 6 to display L1 (LINE 1) or L2 (LINE 2) in the LCD window. If you want to select the input from S VIDEO of LINE IN 1, SET "LINE IN 1 VIDEO" on the MODE SET menu to "S". If you want to select the input from VIDEO, set the menu to "STD".

To preset an FM simulcast recording
Set the desired channel and press **INPUT SELECT** to display the SIMUL indicator anytime in steps 1 to 6. For simulcast recording, see "FM simulcast recording" on page 68.

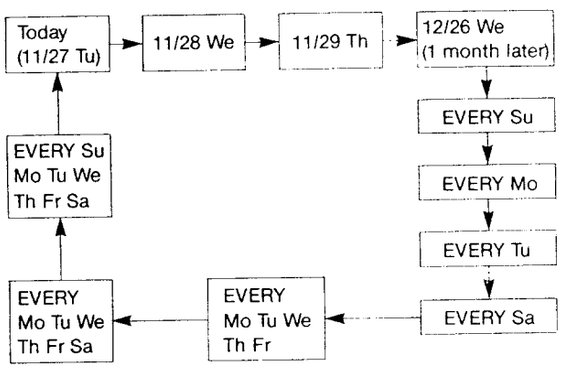
If a short beep sounds repeatedly when TRANS is pressed
Check the followings:
- No cassette is inserted.
- An illogical setting has been made.
- The tape is at its end.
- Eight timer settings have already been made.
- Tape is not in stop mode.

If a short beep sounds repeatedly and the cassette is ejected after pressing TRANS
The safety tab of the inserted cassette is removed.

Information about timer recording
- When the recording is completed, the memory of the program is erased if it is for only one day.
- If the tape reaches at its end before the turn-off time, recording will stop and the power will turn off.

If a power interruption occurs
- If a power interruption lasting less than approximately 3 hours occurs while the VCR is waiting for a preset time, the VCR will enter the standby mode for timer recording again. (If a power interruption lasting more than approximately 3 hours occurs before a timer recording the memory will be cleared. Reset the date and time, then preset the date for the timer recording again.)
- If a power interruption lasting less than approximately 3 hours occurs during a timer recording, the VCR will start recording again but the tape counter will indicate "0H00M00S."

Pressing **DAY** + changes the day indicator in the following order.



Pressing **DAY** — changes the indicator in the reverse direction.

To select the every week or every day recording, press **DAY** — repeatedly until the desired indicator appears in step 2 in the "Timer recording".

At the same time every day	EVERY Su Mo Tu We Th Fr Sa
At the same time every day except Sunday	EVERY Mo Tu We Th Fr Sa
At the same time every day except Saturday and Sunday	EVERY Mo Tu We Th Fr
At the same time on the same day every week (Display the desired day of the week.)	EVERY Sa

To Rewind the Tape Automatically to the Recording Start Point After Timer Recording Is Over

1 Press **MENU**.
The main MENU appears.

2 Move cursor to MODE SET.

3 Press **EXECUTE**.
If the MODE SET [PAGE 1] menu appears, move cursor to NEXT PAGE and press **EXECUTE**.
The MODE SET [PAGE 2] menu is displayed.

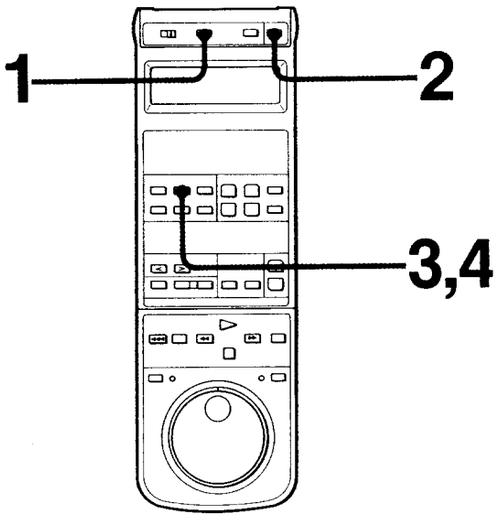
4 Move cursor to TIMER REC – REW.

5 Move dot to ON.

6 Press **EXECUTE** to return to the original screen.

Notes
- If other timer recordings have been preset, TIMER REC – REW does not function after one timer recording is over.
- If the tape comes to its end during timer recording, the tape will be rewound to the recording start point and the power will be turned off.

To Check the Timer Settings



You can check the timer settings by displaying a PROGRAM LIST on the TV screen.

1 Press **TIMER REC ON/OFF** to turn off the TIMER REC indicator.

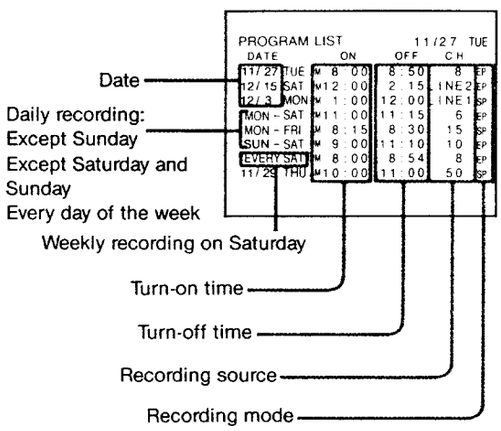
2 Turn on the VCR and TV.

3 Press **TIMER ON SCREEN.**
The PROGRAM LIST appears.

4 Press **TIMER ON SCREEN** to return to the original screen.

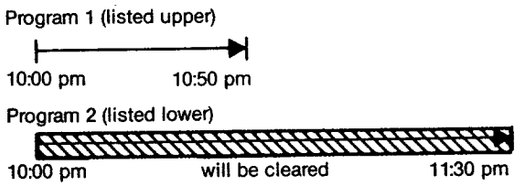
To return to timer recording standby mode
Press **TIMER REC ON/OFF.**

To check the settings without releasing timer recording standby mode
Press **TIMER CHECK** on the Commander. Each press changes the program in the display window one after another.

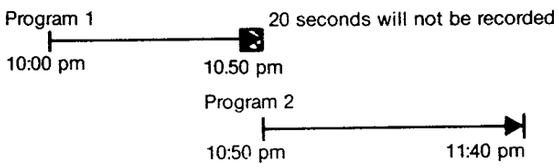


When the Presettings of Timer Recordings Overlap

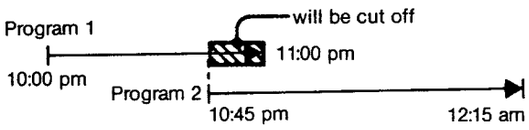
•If the turn-on times of two programs are the same
The recording listed upper on the PROGRAM LIST will be made. The memory of the program listed lower will be cleared (if it is for one-day program).



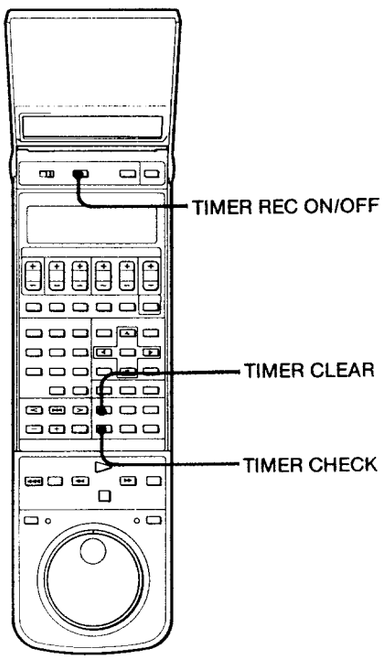
•If the recording start time of program 2 is the same as the recording end time of program 1
The last 20 seconds of program 1 will not be recorded.

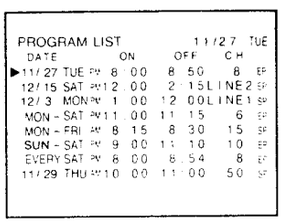


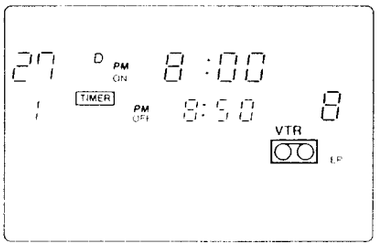
•If the recording start time of program 2 comes before the recording of program 1 is finished
The recording of program 2 begins before program 1 is finished.



To Clear or Change the Timer Settings




PROGRAM LIST 11/27 TUE
DATE ON OFF CH
▶11/27 TUE PM 8:00 8:50 8 EP
12/15 SAT PM12:00 2:15 LINE2 EP
12/3 MON PM 1:00 12:00 LINE1 SP
MON - SAT PM11:00 11:15 6 EP
MON - FRI AM 8:15 8:30 15 SP
SUN - SAT PM 9:00 11:10 10 EP
EVERY SAT PM 8:00 8:54 8 EP
11/29 THU PM10:00 11:00 50 SP



Referring to the PROGRAM LIST

1 Display the PROGRAM LIST referring to steps 1 to 3 in "To check the Timer Settings."

2 Press **TIMER CHECK** to call up and move cursor to the setting you want to correct or clear.

3 To clear the setting, press **TIMER CLEAR.**
If there are other timer settings on the list, press **TIMER REC ON/OFF** to return to the timer recording standby mode.

To correct the setting, re-enter all of the items using the Commander. Refer to "Timer Recording — Operation" steps 1 to 7.
The VCR automatically enters the timer recording standby mode.

Clearing the setting without the PROGRAM LIST

1 Press **TIMER REC ON/OFF.**

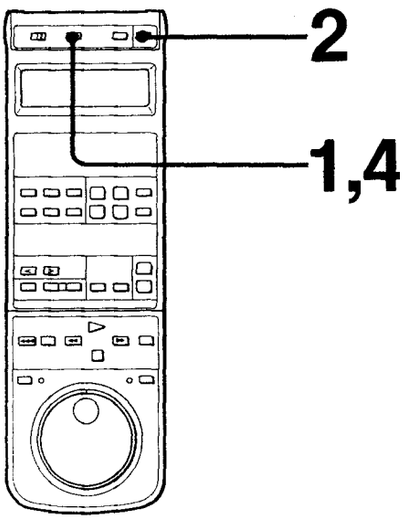
2 Press **TIMER CHECK** repeatedly until the desired programme appears in the display window of the VCR.

3 Press **TIMER CLEAR.**

4 Press **TIMER REC ON/OFF** to return to the timer recording standby mode if there are other programmes set for timer recording.

To Use the VCR during Timer Recording Standby Mode

If you want to use the VCR when it is in the timer recording standby mode, you must cancel the standby mode.



1 Press **TIMER REC ON/OFF** so that the TIMER REC indicator in the display window disappears.

2 Turn on the power of the VCR.

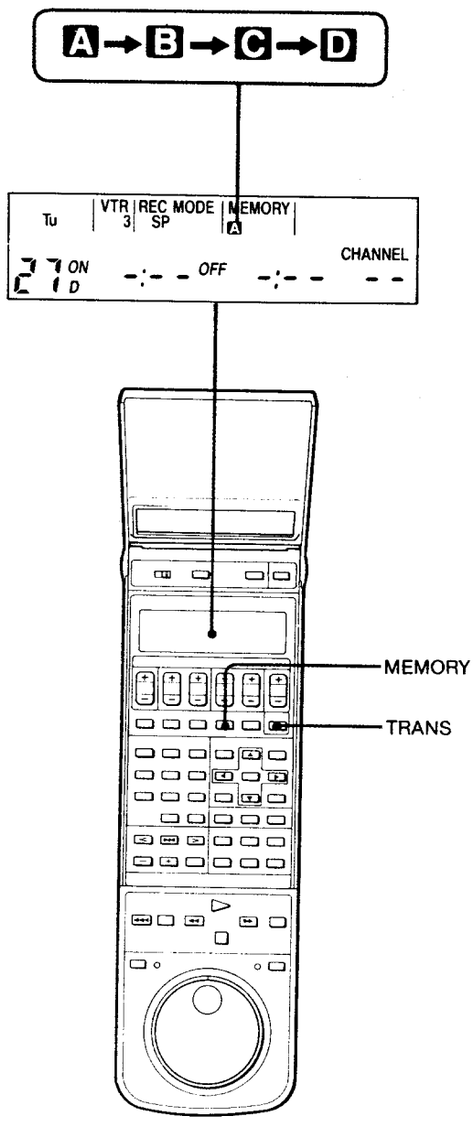
3 Operate the VCR.

4 After using the VCR, press **TIMER REC ON/OFF** so that the TIMER REC indicator appears.

To stop a timer recording after recording has started
Press **TIMER REC ON/OFF.**

You can use the following buttons during timer recording. Others are not operable.
- TIMER REC ON/OFF
- COUNTER RESET
- ANT TV/VTR (to watch the picture broadcast on another channel)
- DATA SCREEN
- TIMER ON SCREEN

To Store the Frequently Used Timer Settings in the Commander



The items selected for one timer recording program will be erased from the LCD when the Commander cover is closed, and cleared from the program list as well when recording is over.
However, the turn-on/turn-off time and the program position of up to four programs can be stored in the Commander to be recalled later. This enables you to quickly access the most frequently used items, especially your favorite weekly program, since the recording date will automatically be shifted to the next week after the recording is over.

Storing the parameters

1 Press **MEMORY** to indicate MEMORY A.

2 Set all of the items for timer recording referring to "Timer Recording — Operation."

3 Press **MEMORY** to change the indication to B, C, or D, and repeat step 2 for other programmes.
The items set will be kept in the memory even when the Commander cover is closed.

Recalling and re-entering the items.

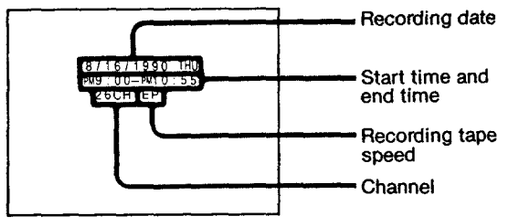
1 Press **MEMORY** to call up the desired memory indication (A, B, C, or D).

2 Make whatever changes necessary.

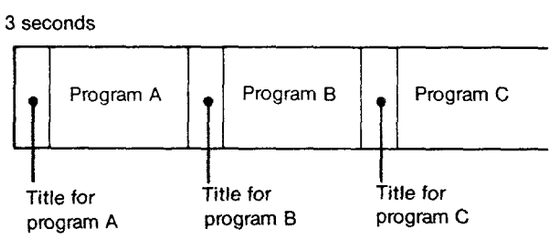
3 Press **TRANS**.
The VTR enters the timer recording standby mode.

Recording a Timer Title

A timer title which consists of the items below is recorded on the tape for approximately 3 seconds before each recording.



This function makes it easier to search for a certain program when several programs have been recorded on a single tape.



If you do not want a title to be recorded

Use ▲ and ▼ to move cursor.
Use ▶ and ◀ to move dot.

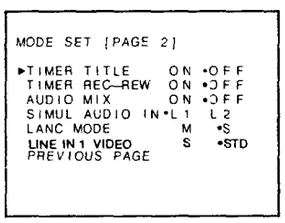
1 Press **MENU**.
The main MENU appears.

2 Move cursor to MODE SET.

3 Press **EXECUTE**.
If the MODE SET [PAGE 1] menu appears, move cursor to NEXT PAGE and press **EXECUTE**.
The MODE SET [PAGE 2] menu is displayed.

4 Move cursor to TIMER TITLE.

5 Move dot to OFF.


MODE SET [PAGE 2]
▶TIMER TITLE ON •OFF
TIMER REC—REW ON •OFF
AUDIO MIX ON •OFF
SIMUL AUDIO IN •L1 L2
LANC MODE M •S
LINE IN 1 VIDEO S •STD
PREVIOUS PAGE

6 Press **EXECUTE** to return to the original screen.

Quick Timer Recording

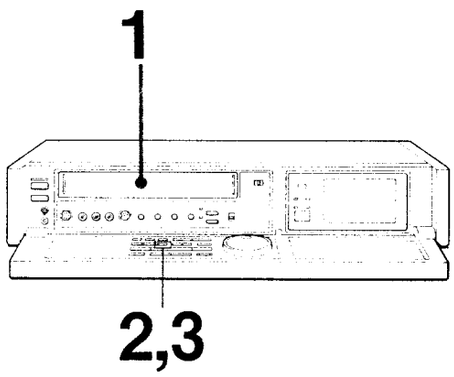
This function is convenient, for example, when you want to begin recording a program immediately, and do something else.
The timer can be set to operate within 8 hours in units of 30 minutes.

Before You Begin

- Set INPUT SELECT to TUNER (i.e. TUNER indicator appears.)
- Set the tape speed to SP or EP with **REC MODE**.
- **REC LEVEL** must be set to the 5 position.
- The TIMER REC indicator must not be displayed. Press **TIMER REC ON/OFF** if the indicator is lit.

Operation

If you are recording now, perform only step 3.



1 Insert a cassette.

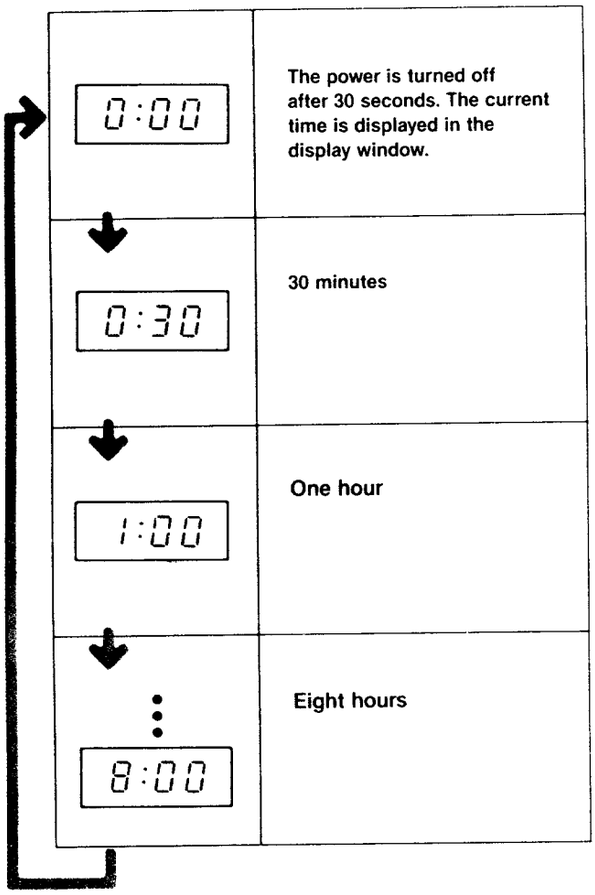
2 Press **QUICK TIMER**.
The TIMER indicator lights.
While the channel display is blinking in the display window, select the desired channel with **CHANNEL** +/−, **the channel number button(s)** and **ENTER** or **JOG** on the Commander.

3 Press **QUICK TIMER** again so that recording starts.
Now decide the recording duration.
Every time you press **QUICK TIMER**, the recording duration displayed increases by 30 minutes.

You can leave the VCR after turning off the TV.
The power of the VCR will be turned off automatically when preset duration comes.

Recording Duration Indication

Every time you press **QUICK TIMER**, the recording duration indication in the display window changes as shown below.



You can change the recording duration with **QUICK TIMER** even during quick timer recording. During recording, the displayed recording duration decreases minute by minute.

Buttons Operable During Quick Timer Recording

TIMER REC ON/OFF	To stop quick timer recording
QUICK TIMER	To change the recording duration
COUNTER RESET	To reset the tape counter to zero
ANT TV/VTR	To watch the picture broadcast on another channel
TIMER ON SCREEN	Check the timer recording settings
DATA SCREEN	To erase or display the on-screen display

If the tape runs out during quick timer recording
Recording stops and the power is turned off.
The tape is not rewound automatically.

If a cassette without its safety tab is inserted
The cassette is ejected automatically when you press **QUICK TIMER**.

If a power interruption occurs during quick timer recording
Recording stops and the power of the VCR turns off.
If the power interruption lasts less than three hours and the power is restored within the quick timer duration, recording starts again.

Index Function

The desired program on the recorded tape can be easily located by detecting an index signal.
The index signals must be marked at the beginning of the program on the tape.

To Mark Index Signals

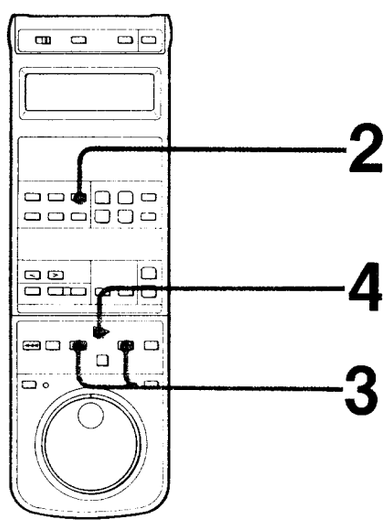
At the beginning of a recording, timer recording, or quick timer recording
An index signal is automatically marked on the tape.

To mark an index signal manually
Index signals can be marked at the desired scene during recording or normal playback.
Press **INDEX MARK** to mark an index signal. The INDEX indicator blinks in the display window and the INDEX MARK indicator appears on the screen while an index signal is being marked.

Notes
- Mark an index signal more than 2 minutes before or after the previous index signal so that the VCR can detect it correctly.
- While an index signal is being marked during playback, the recorded sound is not heard, but it will not be erased.
- You cannot mark an index signal in the following cases:
  — On a tape without its safety tab
  — On an unrecorded portion of a tape
  — Immediately before a point on the tape where the tape speed (EP or SP) changes
  — When playing back a tape recorded in the LP mode

Index Scan

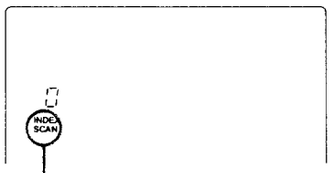
You can play back the beginning of each program in sequence using the index function.



1 Insert a cassette with index signals marked.

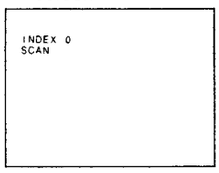
2 Press **INDEX** once.

Display window



INDEX and SCAN
blink alternately

TV screen



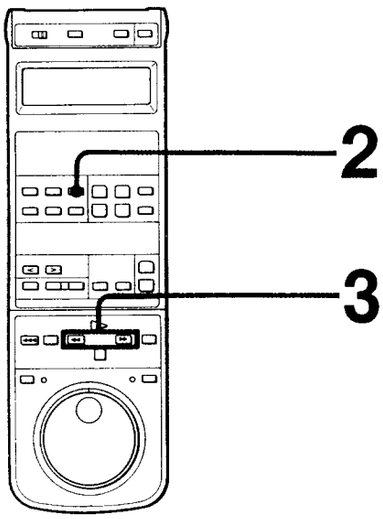
3 To scan the previous programs, press ◄◄ **REW.**
To scan the programs ahead, press ►► **FF.**
The INDEX SCAN indicator blinks continuously while scanning.
The tape is rewound or rapidly advanced to the next marked index signal, the tape is played back for approximately 10 seconds, and then rewound or advanced to the next index signal.
The displayed index number increases one by one (up to 19).

4 Press ► **PLAY** when the desired program appears.
Normal playback of that program begins.

Index Function

Index Search

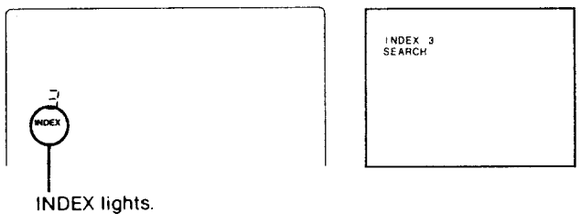
You can locate the desired program and play it back automatically. You have to designate the number how many index signals ahead or behind the desired program is from the present one.
Up to 19 index signals from the present position on the tape can be located.



How to designate the index number of the desired program

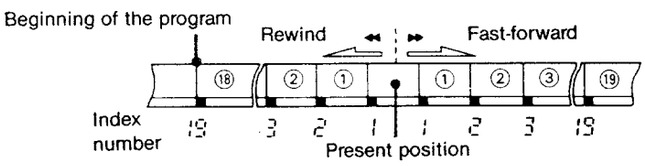
1 Insert a cassette with index signals marked.

2 Press **INDEX** until the index number of the desired program is displayed. The INDEX indicator and the INDEX SEARCH number light up.



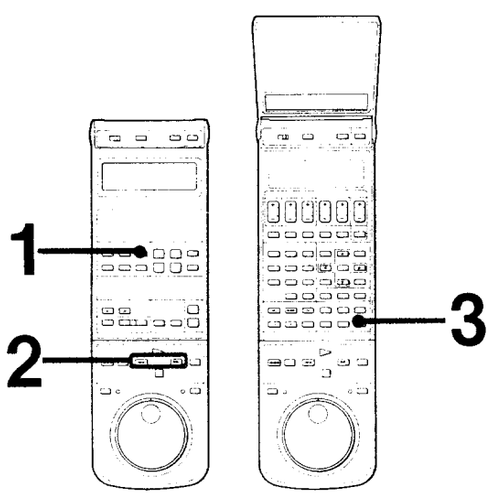
INDEX lights.

3 To locate a previous program on the tape, press ◀◀ **REW.**
To locate a program ahead, press ▶▶ **FF.**
The tape is rewound or rapidly advanced.
Every time an index signal is detected, the INDEX SEARCH number decreases. When the number reaches 0, playback of the desired program begins.



To Erase Index Signals

You can erase unnecessary index signals.



1 Press **INDEX** once.

2 Press ◀◀ **REW** or ▶▶ **FF.**
The tape is rewound or rapidly advanced. Every time an index signal is detected, the tape is played back and then rewound or advanced to the next index signal.

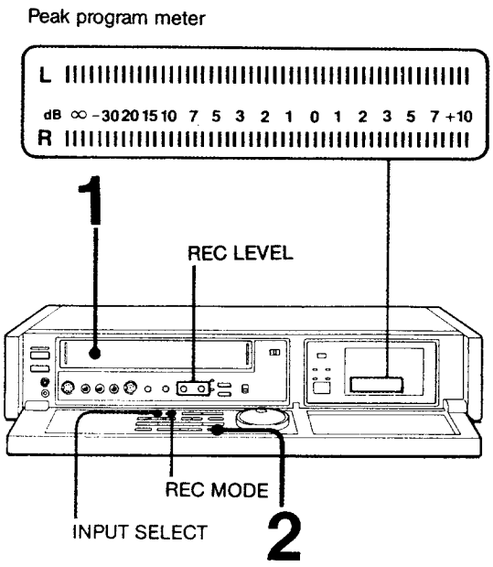
3 Press **INDEX ERASE** within approximately 10 seconds after you have verified the playback picture.

Notes
- While the index signal is being erased, the recorded sound is not heard but will not be erased.
- Index signals cannot be erased when they are marked just before and after the tape speed is changed or are marked on a LP mode tape.

Audio Recording

Hi-fi Recording

In conventional recording, audio signals are recorded on the audio track and video signals on the video track.
In hi-fi recording, audio signals are recorded in the same manner as video signals, using two rotary hi-fi audio heads. Thus, high-quality sound recording is possible.



Before you begin

- Your audio system must be correctly connected to the VCR. (See " Connections.") (page 24)
- Set **INPUT SELECT** to LINE 1 or LINE 2 according to which your audio system is connected.
- Set **REC MODE** to SP or EP.
- Adjust **REC LEVEL.**
  Play a recording source and manually adjust **REC LEVEL** while observing the PEAK PROGRAM METER.
  When recording from a disk or FM tuner:
  Adjust so that the right-most element sometimes lights up.
  When recording from a compact disc or PCM digital audio processor:
  Adjust so that the right-most element lights up only at the highest signal level.

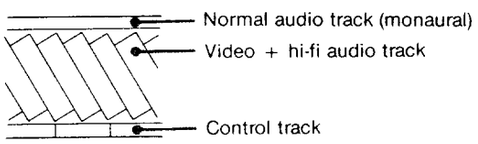
Note
The elements which light up may be slightly different between L and R indicators.

Operation

1 Insert a cassette.

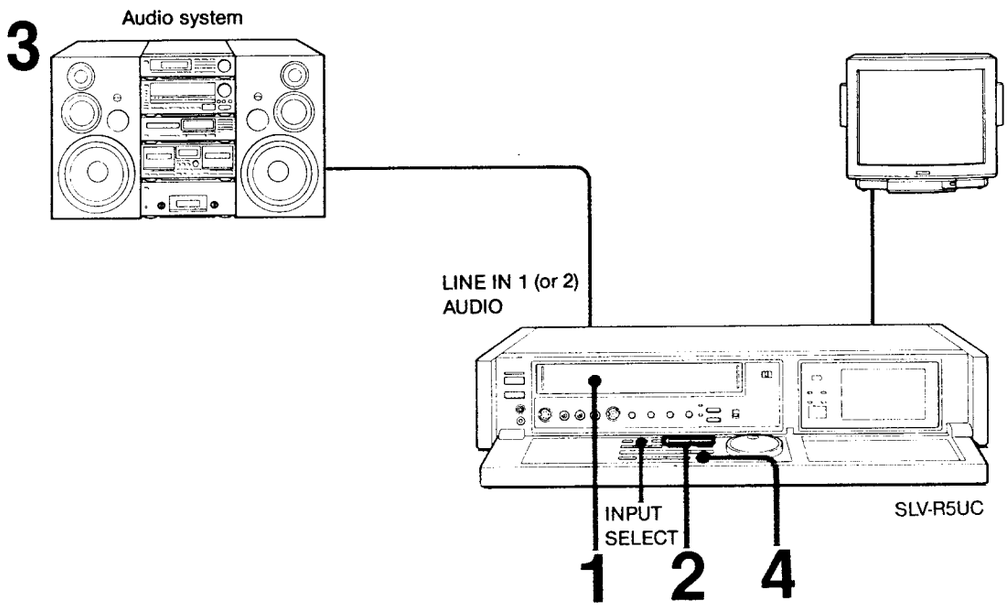
2 Press ● **REC** on the VCR or two ● **REC** buttons on the Commander simultaneously.

Hi-fi recording pattern on a tape
The VCR automatically performs hi-fi recording and normal audio recording at the same time, so that these tapes can also be played back on any VCR without a hi-fi system.



FM Simulcast Recording

Sometimes a TV station and FM radio station broadcast a program simultaneously.
By connecting an FM tuner besides the antenna connection, you can record the TV program in hi-fi stereo. The picture of the TV program and the sound from the FM tuner are recorded on the video track. The sound of the TV program is recorded on the normal audio track.



Before you begin

- Press **INPUT SELECT** to light the SIMUL indicator in the display window.
- Display MODE SET menu and select SIMUL AUDIO IN L1 (LINE 1) or L2 (LINE 2) according to which the FM tuner is connected. (For MODE SET menu, see page 28.)
- Other settings are the same as "Hi-fi recording" on page 67.

Operation

1 Insert a cassette.

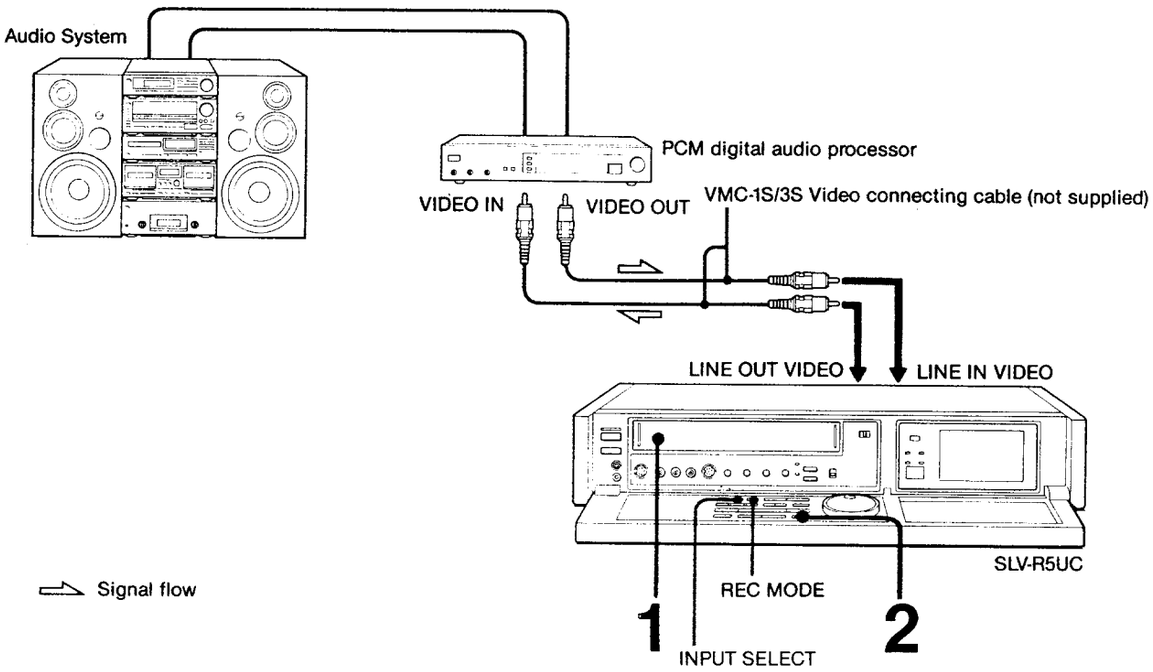
2 Select the channel you want to record on the VCR.

3 Select the station you want to record on the FM tuner.

4 Press ● **REC** on the VCR or two ● **REC** buttons on the Commander.

PCM Recording and Playback

You can enjoy PCM recording and playback by connecting a PCM digital audio processor to LINE IN and OUT VIDEO on this VCR.



Before you begin

- Press **INPUT SELECT** to light LINE 1 or LINE 2 according to which the PCM digital audio processor is connected.
- Select the tape speed, SP or EP with **REC MODE**.

Operation

1 Insert a cassette.

2 Press ● **REC** on the VCR or two ● **REC** buttons on the Commander.

- For details, refer to the instruction manual of the digital audio processor and the audio system.

Editing the Entire Tape Contents to Another Tape

Using an additional VCR, you can create your own video program tape.

Before You Begin

When you use this VCR as the recording VCR
Check the followings on this VCR.
- Press **INPUT SELECT** to light LINE 1 or LINE 2 according to which the other VCR is connected.
- Select the recording tape speed, SP or EP with REC MODE.
- Set **REC LEVEL** to 5.
- When you use an S-VHS cassette, set the **S-VHS** switch to ON to record with S-VHS system or to OFF to record with VHS system.

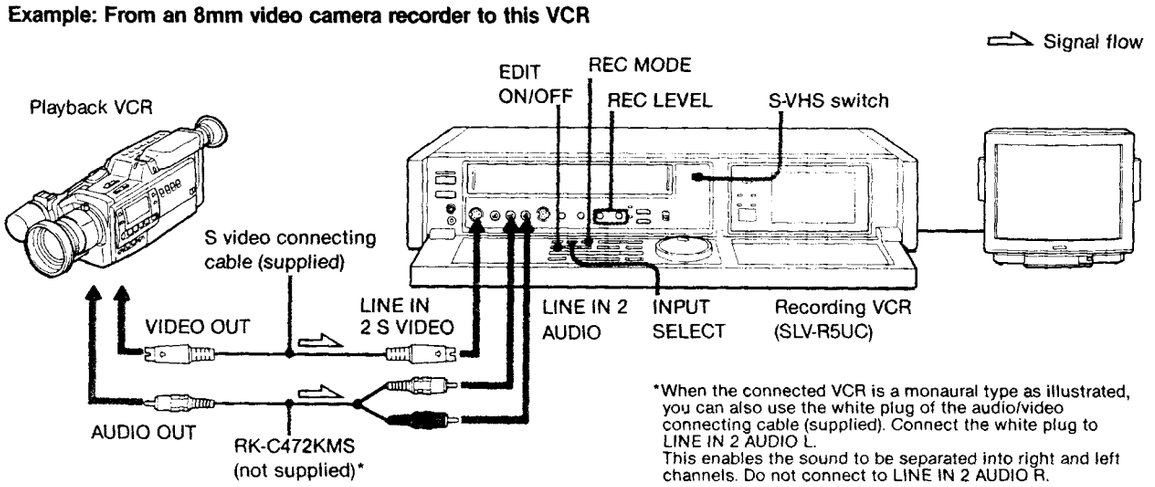
When you use this VCR as the playback VCR
Select the sound to be recorded with **AUDIO MONITOR** on the Commander.

Use of the EDIT ON/OFF button
Before editing, press **EDIT ON/OFF** to light the EDIT indicator in the display window. This enables recording and playback of higher quality pictures during editing. If the other VCR is equipped with this function, activate it. However, even when using this function, the quality of the edited tape will have a certain extent of deterioration in picture and sound. Avoid using the edited tape for multiple generation of editing.

Caution
Television programs, films, video tapes and other materials may be copyrighted.
Unauthorized duplication of such material may be contrary to the provisions of the copyright laws.

Editing a Home Movie Tape from Another VCR

Example: From an 8mm video camera recorder to this VCR



*When the connected VCR is a monaural type as illustrated, you can also use the white plug of the audio/video connecting cable (supplied). Connect the white plug to LINE IN 2 AUDIO L.
This enables the sound to be separated into right and left channels. Do not connect to LINE IN 2 AUDIO R.

1 Turn on the power of the playback VCR and insert a source tape.

2 Insert a tape for recording into this VCR.

3 Press **EDIT ON/OFF** to light the indicator in the display window.
Activate the EDIT ON/OFF mode if the playback VCR has this function.

4 Locate the playback start point on the playback VCR and set it to the playback pause mode.

5 Locate the recording start point on this VCR and set it to the recording pause mode.

6 Press the **PAUSE** button on both VCRs simultaneously.
The other VCR starts playback and this VCR starts recording.

When editing is completed
Press the **STOP** button on both VCRs.

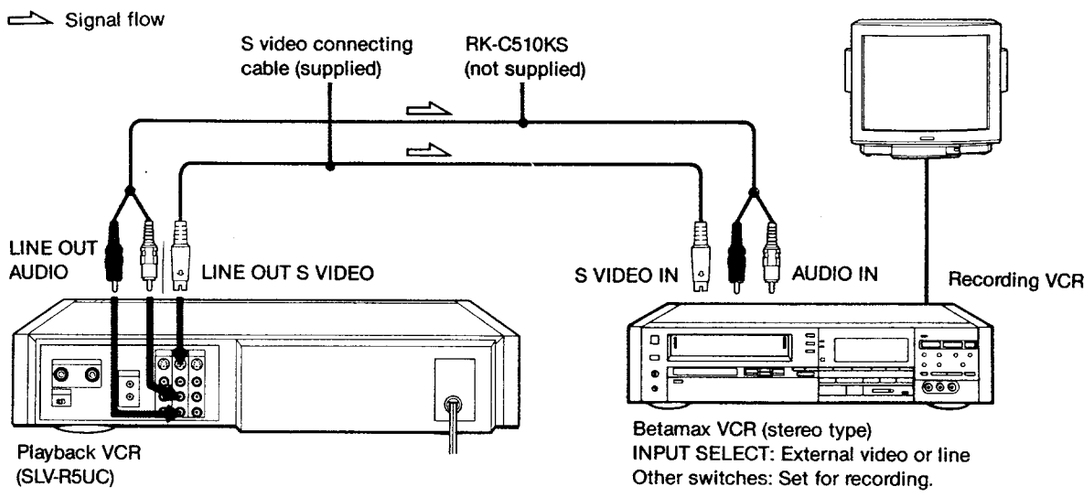
If the connected VCR is equipped with no S VIDEO OUT
Connect to VIDEO IN of this VCR with the VMC-910KMS (not supplied) video cable, etc.

When you connect another VCR to LINE IN 1 of this VCR
If you want to select the input from S VIDEO of LINE IN 1, set "LINE IN 1 VIDEO" on the MODE SET [PAGE 2] menu to "S".
If you want to select the input from VIDEO, set the menu to "STD". (See page 29.)

If the connected VCR is a stereo type
Use the RK-C510 video cable, etc. to make connection.

Editing a Home Movie Tape from This VCR

Example: From this VCR to a Sony Betamax VCR



1 Insert a source tape into this VCR.

2 Turn on the power of the recording VCR and insert a tape for recording.

3 Press **EDIT ON/OFF** to light the EDIT indicator in the display window.
Activate EDIT function if the recording VCR has this function.

4 Locate the playback start point on this VCR and set it to the playback pause mode.

5 Locate the recording start point on recording VCR and set it to the recording pause mode.

6 Press the **PAUSE** button on both VCRs simultaneously.
This VCR starts playback and the other VCR starts recording.

When editing is completed
Press the **STOP** button on both VCRs.

If the connected VCR is a monaural type
- Use the VMC-910KMS/920KMS connecting cable (not supplied).
- To play back a cassette tape on which an MTS broadcast has been recorded, select the monitor sound with **AUDIO MONITOR** on the Commander.

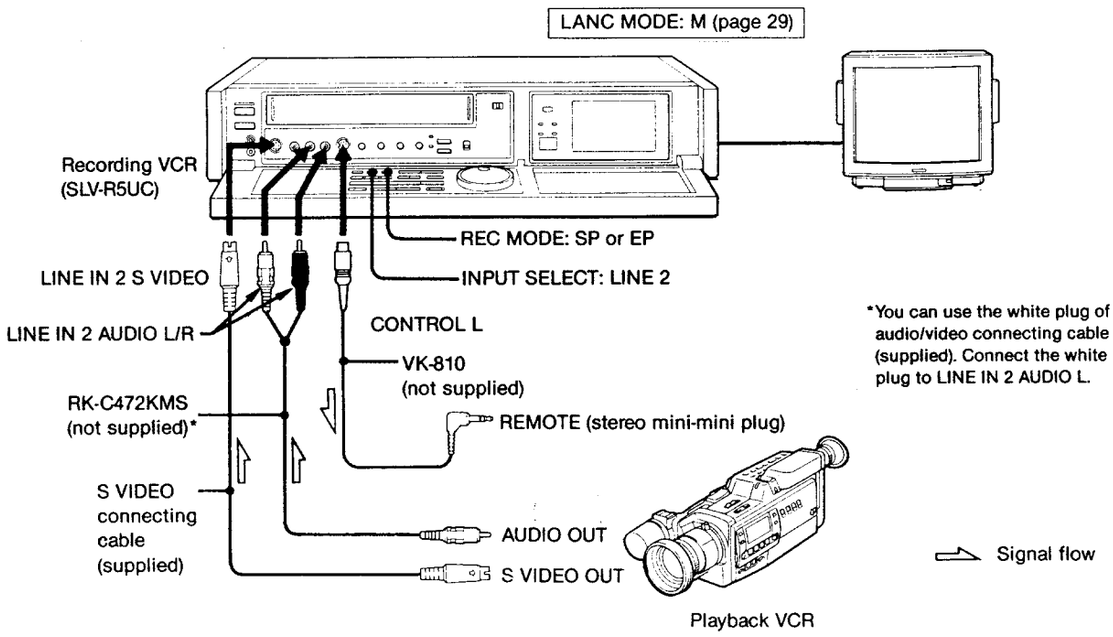
If the connected VCR has no S VIDEO IN
Connect to LINE OUT VIDEO/AUDIO of this VCR with the audio/video connecting cable (supplied), etc.

Note
Do not connect the same VCR to both the LINE IN and LINE OUT jacks of this VCR. This may cause a humming noise.

Synchronized Editing Recording and playback on two VCRs can be synchronized.

Editing a Home Movie Tape from Another VCR: Connecting a VCR equipped with a CONTROL L (REMOTE) connector

Example: From an 8 mm video camera recorder to this VCR



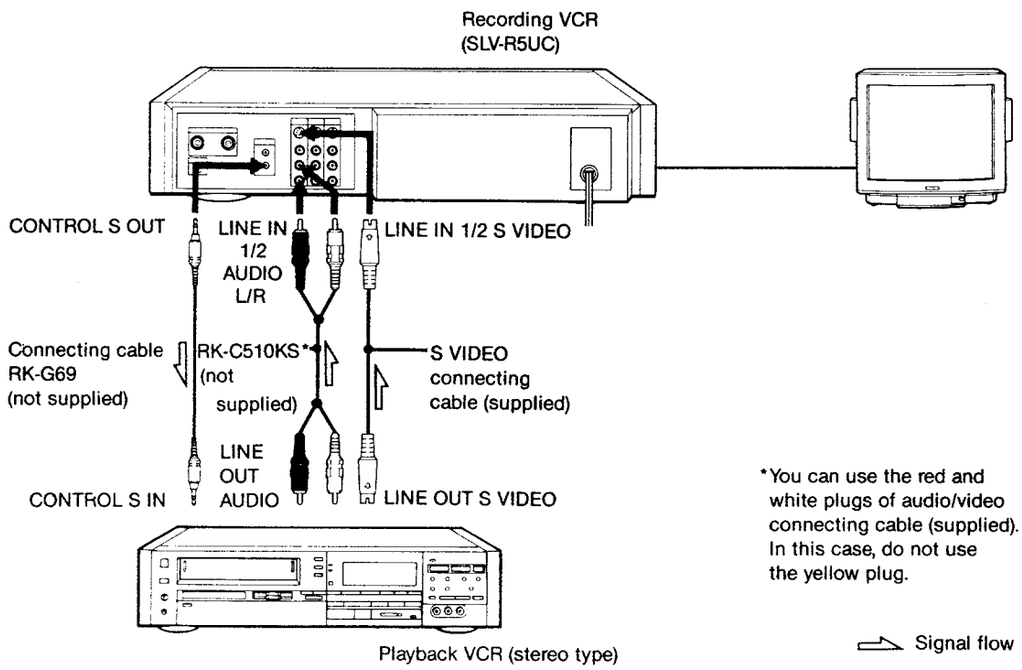
If the REMOTE connector of the connected video camera recorder is a 5-pin DIN connector
Use the VK-800 connecting cable instead of the VK-810.

When the connected video camera recorder is a monaural type as illustrated
You can also use the white plug of the audio/video connecting cable (supplied).
Connect the white plug to LINE IN 2 AUDIO L. This enables the sound to be separated into right and left channels. Do not connect the red plug to LINE IN 2 AUDIO R.

If you connect a Sony editing controller RM-E300
You can perform automatic assemble editing of up to 8 programs. Set "LANC MODE" on the MODE SET [PAGE 2] menu to S. (page 29)

Editing a Home Movie Tape from Another VCR: Connecting a VCR equipped with a CONTROL S IN jack

Example: From a Sony Betamax VCR to this VCR


Recording VCR
(SLV-R5UC)
CONTROL S OUT
LINE IN 1/2 AUDIO L/R
LINE IN 1/2 S VIDEO
Connecting cable RK-G69 (not supplied)
RK-C510KS* (not supplied)
S VIDEO connecting cable (supplied)
LINE OUT AUDIO
CONTROL S IN
LINE OUT S VIDEO
Playback VCR (stereo type)
*You can use the red and white plugs of audio/video connecting cable (supplied). In this case, do not use the yellow plug.
Signal flow

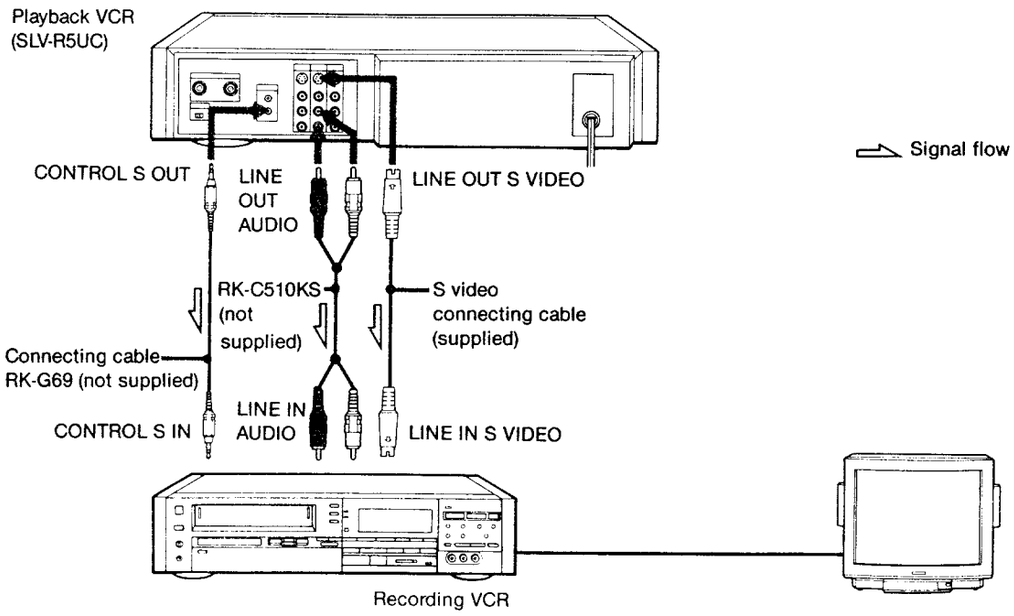
When you connect another VCR to LINE IN 1 of this VCR
If you want to select the input from S VIDEO of LINE IN 1, set "LINE IN 1 VIDEO" on the MODE SET [PAGE 2] menu to "S".
If you want to select the input from VIDEO, set the menu to "STD". (See page 29.)

If the connected VCR has no S VIDEO OUT
Connect to LINE IN 1/2 VIDEO/AUDIO of this VCR with the VMC-910MKS/920MKS connecting cable (not supplied).
If the connected VCR is a stereo type, use the audio/video connecting cable (supplied), etc.

If the connected VCR is a monaural type
- Use the VMC-910MKS/920MKS connecting cable (not supplied) instead of the RK-C510KS connecting cable.
- Connect the white plug of the audio/video connecting cable to LINE IN 2 AUDIO L. This enables the sound to be separated into right and left channels. Do not connect the red plug to LINE IN 2 AUDIO R.

Editing a Home Movie Tape from This VCR: Connecting a VCR equipped with a CONTROL S IN jack

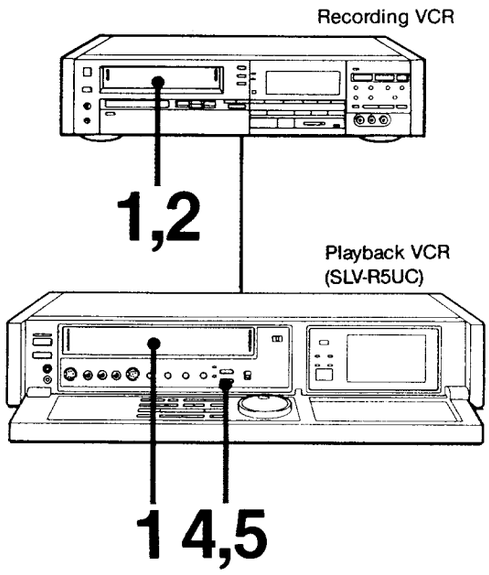
Example: From this VCR to a Sony Betamax VCR

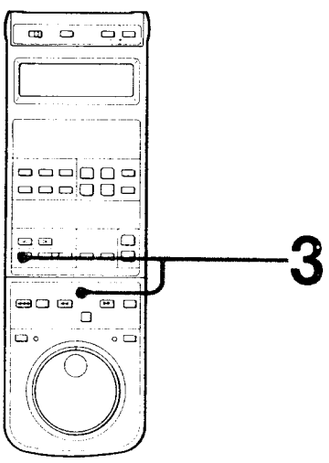


Synchronized Editing

•For connection, see page 75.
•Before operation, see "Before you begin" on page 70.

Operation





1 Insert a source tape into this VCR and a tape for recording into the recording VCR.

2 On the recording VCR, locate the recording starting point and set the VCR to the recording pause mode.

3 On this VCR, locate the point where you wish to start editing and set the VCR to the playback pause mode.

4 Press **SYNCHRO EDIT**.
After the tape is rewound a little, the playback starts on this VCR. The recording starts at the recording starting point.

When **SYNCHRO EDIT** is pressed, the EDIT indicator lights in the display window.

5 Press **SYNCHRO EDIT** to stop editing.
This VCR is set to the playback pause mode and the recording VCR is set to the recording pause mode.

To edit the next desired scene
Repeat steps 3 to 5.

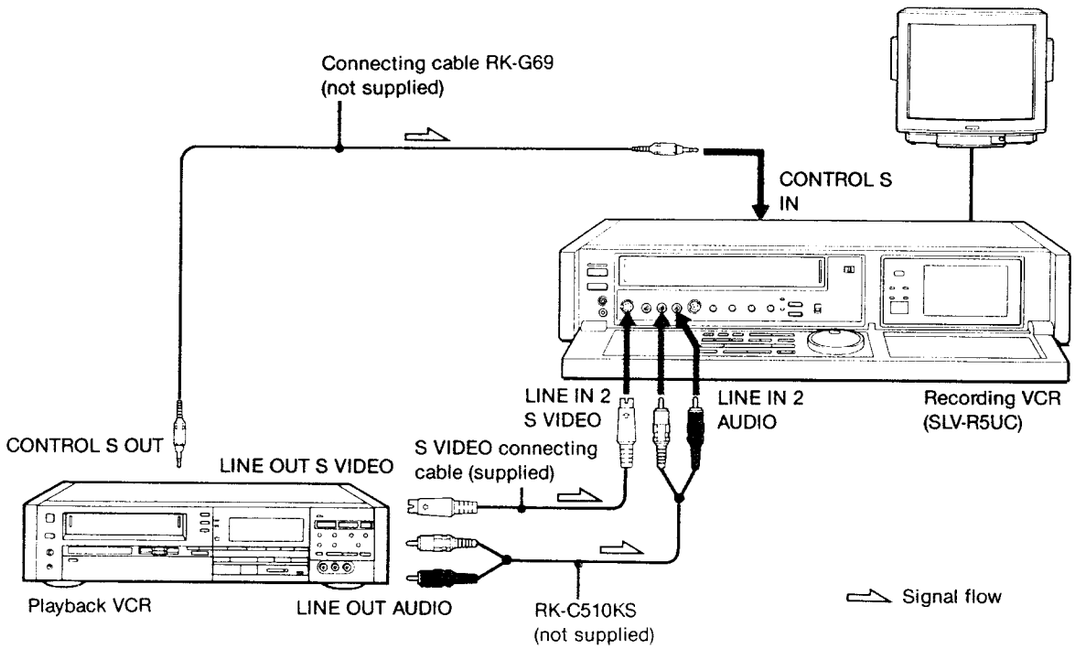
To stop editing
Press the **STOP** button on both VCRs.

To avoid deterioration in picture
When **EDIT ON/OFF** is pressed and the EDIT indicator lights, the deterioration in picture can be reduced.
When **SYNCHRO EDIT** on this VCR is pressed, the EDIT function is automatically activated.

Note
Do not operate the buttons on the VCRs or Commander during editing. Otherwise, a malfunction may occur.

Editing a Home Movie Tape from Another VCR: Connecting a VCR with a CONTROL S Out jack and Synchro Edit function

Example: From a Sony Betamax VCR to this VCR



•Before operation, see "Before you begin" on page 70.

Operation

1 Turn on the power of the playback VCR and insert a source tape.
Activate the EDIT function if the VCR has it.

2 Insert a tape for recording into this VCR.

3 Locate the edit start point on this VCR and set it to the recording pause mode.

4 Locate the playback start point on the playback VCR and set it to the playback pause mode.

5 Press the **SYNCHRO EDIT** button on the playback VCR.
The other VCR starts playback and this VCR starts recording.

6 Press the **SYNCHRO EDIT** button on the playback VCR at the edit end point.
The playback VCR enters the playback pause mode and this VCR enters recording pause mode.

To edit the next scene
Repeat steps 4 to 6.

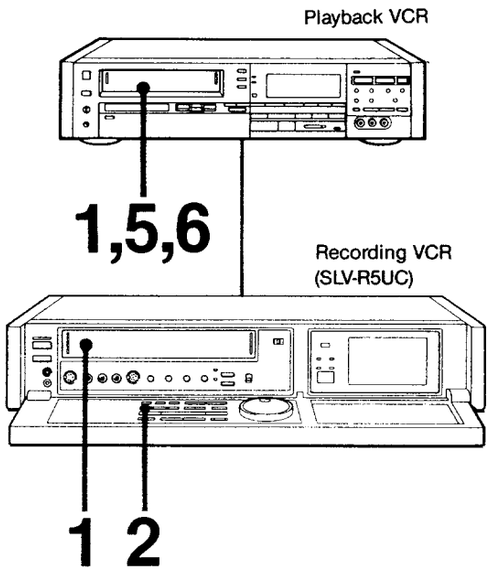
When editing is completed
Press the **STOP** button on both VCRs.

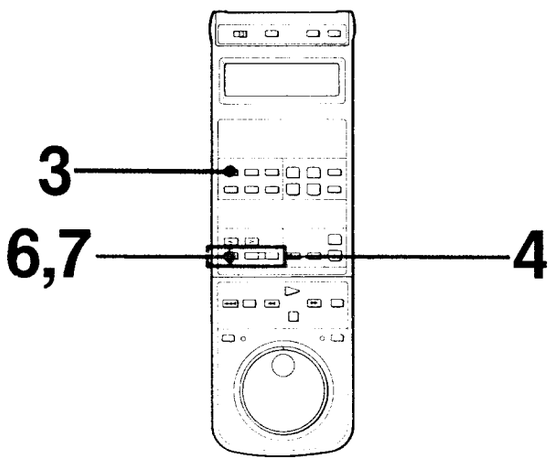
Setting of COMMAND MODE
Set COMMAND MODE on this VCR to VTR 1 or VTR 2. Otherwise, this VCR cannot be operated. When using the Remote Commander, set COMMAND MODE on the Commander to VTR 1 or VTR 2, also.

Manual Assemble Editing with a VCR without a Control Terminal

- For connection, see page 73. (The CONTROL S connection is not needed.)
- See "Before you begin" on page 70.

Example: From a Sony Betamax VCR to this VCR



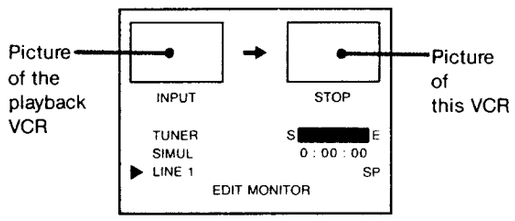


Operation

1 Insert a source tape into the playback VCR and a tape for recording into this VCR.

2 Press **EDIT ON/OFF.**
The EDIT indicator lights.

3 Press **EDIT MONITOR.**



4 On this VCR, locate the recording starting point and set the VCR to the recording pause mode.

5 On the playback VCR, locate the point where you wish to start editing and set the VCR to the playback pause mode.

6 Press the **PAUSE** button on both VCRs simultaneously to start editing.

7 Press ▮▮ **PAUSE** on this VCR to stop editing.

To edit the next desired scene
Repeat steps 5 to 7.

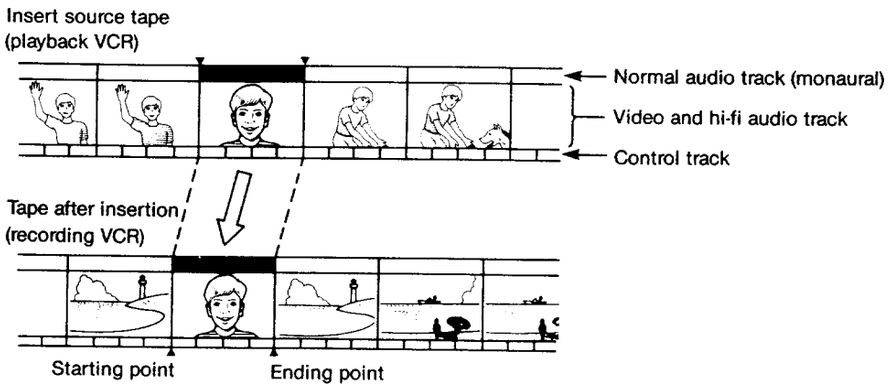
To stop editing
Press the **STOP** button on both VCRs.

Insert Editing

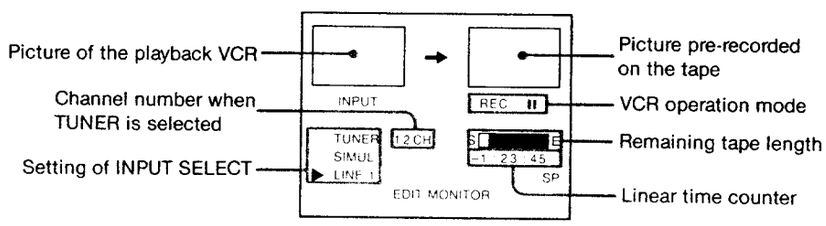
Inserting a New Scene onto a Pre-recorded Tape

You can easily insert a new picture and/or sound onto a pre-recorded tape. "Audio insert", "Video insert", or "Audio and video insert" can be selected with this operation. This editing is useful to replace an unnecessary scene (sound) with another scene (sound).

- For connection, see page 72 or 73. (The CONTROL L and CONTROL S connections are not needed.)
- Select the insert source from the equipment connected to LINE IN 1 or 2.

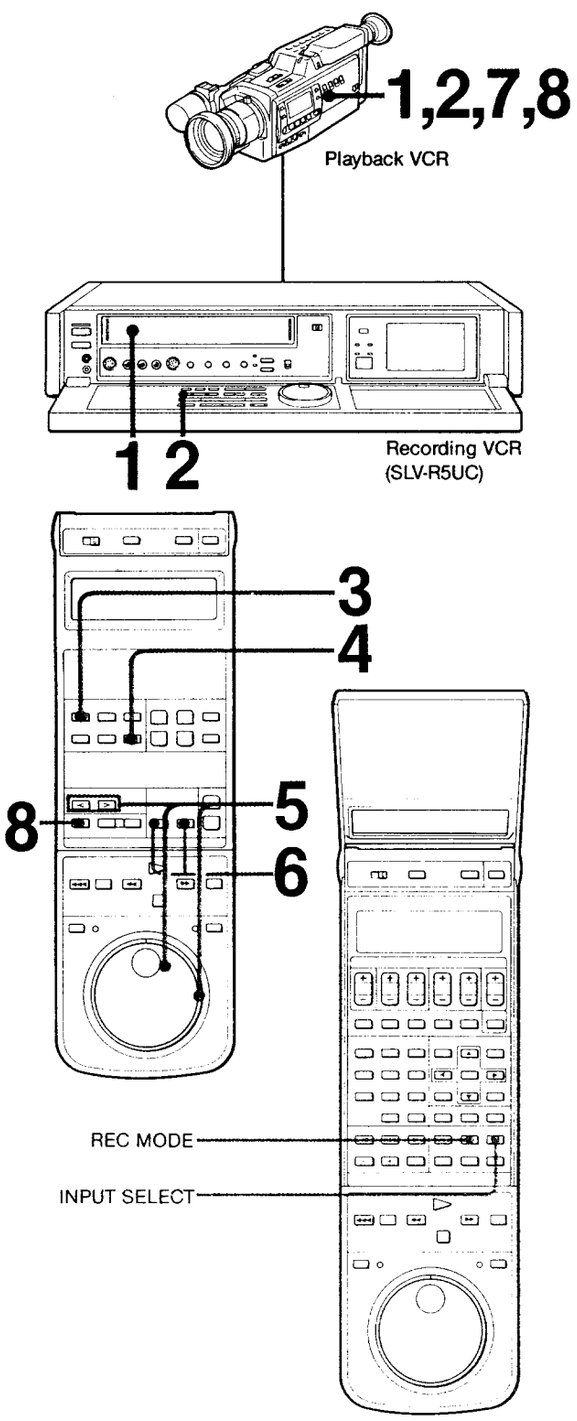


EDIT MONITOR display



Operation

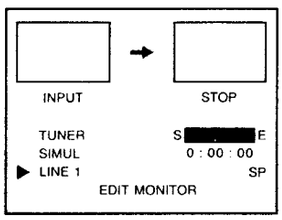
Example: From an 8 mm video camera recorder to this VCR



1 Insert a source tape into the playback VCR and a tape for recording into this VCR.

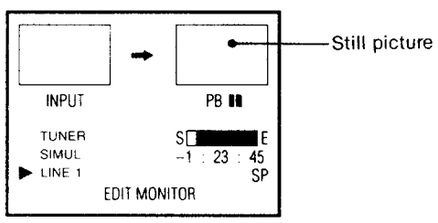
2 Press **EDIT ON/OFF.**
Activate the edit function if the playback VCR has it.

3 Press **EDIT MONITOR.**

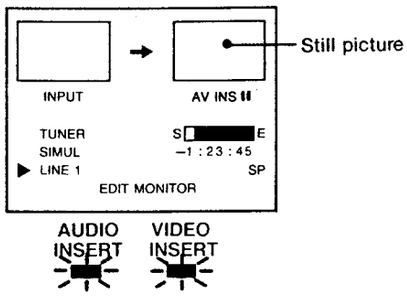


4 On this recording VCR, locate the ending point and press **COUNTER RESET.**
The counter will show "0H00M00S" and the ending point will be memorized.

5 On the recording VCR, rewind the tape to locate the starting point and set the VCR to the playback pause mode.
JOG/SHUTTLE or **SHUTTLE EDIT** is useful for searching a desired point.

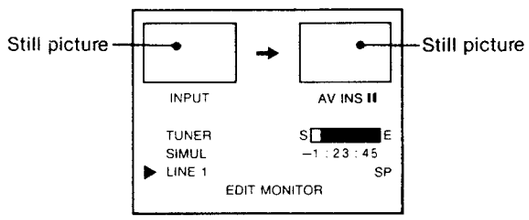


6 Press **VIDEO/AUDIO INSERT.**
For audio insert, press **AUDIO.**
For video insert, press **VIDEO.**
For audio and video insert,
press the **AUDIO** and then **VIDEO.**



The indicator corresponding to the button pressed will light.

7 On the playback VCR, locate the starting point where you want to start the insertion and set the VCR to the playback pause mode.



8 Press the **PAUSE** button on both VCRs to start the insertion.
At the ending point (0H00M00S), the insertion will stop automatically. (To stop playback, press the STOP button.)

Notes on when INSERT is pressed
When VIDEO INSERT is pressed
The picture and the hi-fi sound will be inserted. (The monaural sound will be retained.)

When AUDIO INSERT is pressed
The monaural sound will be inserted. (The picture and the hi-fi sound will be retained.)

When VIDEO and AUDIO INSERT are pressed
The picture, hi-fi sound and monaural sound will be inserted.

To stop the insertion temporally
Press **II PAUSE.**

To stop on-going insertion
Press **■ STOP.**

To turn off the editing display
Press **EDIT MONITOR.**

When the sound from the microphone is inserted
When the microphone is connected to MIC jack, the sound from the microphone is automatically selected and it is recorded on the normal audio track. When **VIDEO INSERT** is pressed, the sound from the microphone cannot be recorded.

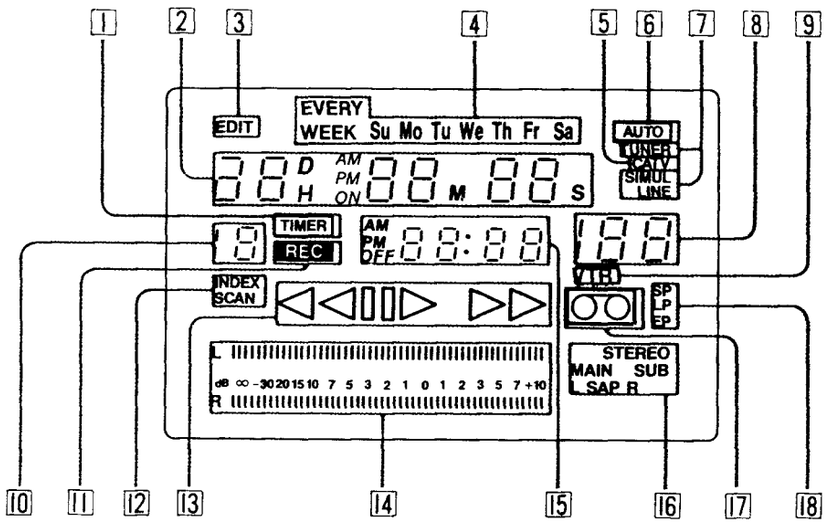
Note
If you turn off the SLV-R5UC with the microphone connected, and then turn it on again, the sound selected with INPUT SELECT will be heard.
To again hear the sound with the use of the microphone, press AUDIO MONITOR on the Commander or unplug the microphone and then connect it to the MIC jack.

Note
A MIC jack of the SLV-R5UC is adaptable with the use of a monaural mini plug. If the plug used for your microphone is a stereo mini type, use a plug adaptor such as the PC-236MS or the PC-236HMS.

Notes
- The insertion cannot be made onto the unrecorded portion of a tape.
- After the insertion, the previous picture and/or sound will be erased.

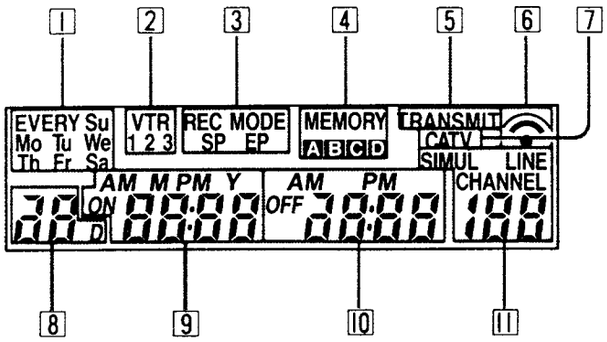
Indicators in the Display Window

Indicators in the Display Window on the VCR



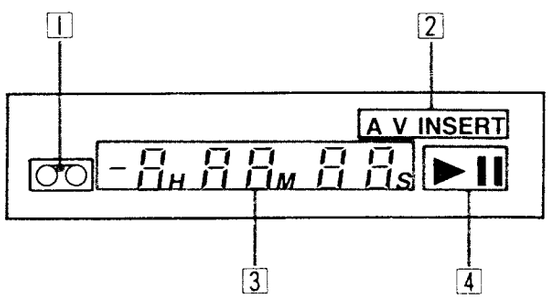
1. TIMER recording indicator
2. Linear time counter and turn-on time of timer recording
3. EDIT indicator
4. Day of the week indicator, every week indicator for timer recording
5. CATV indicator
6. Automatic function indicator
7. Input mode indicators
8. Channel number and input mode
9. VTR indicator
10. INDEX number, program number for timer recording
11. REC (recording) indicator
12. INDEX, INDEX SCAN indicator
13. Tape transport indicator
14. Peak program meter
15. Current time, turn-off time of timer recording, and quick timer recording time
16. Stereo program/SAP indicator
17. Cassette indicator
18. Tape speed indicator (LP is for playback only.)

Indicators in the LCD Window on the Commander



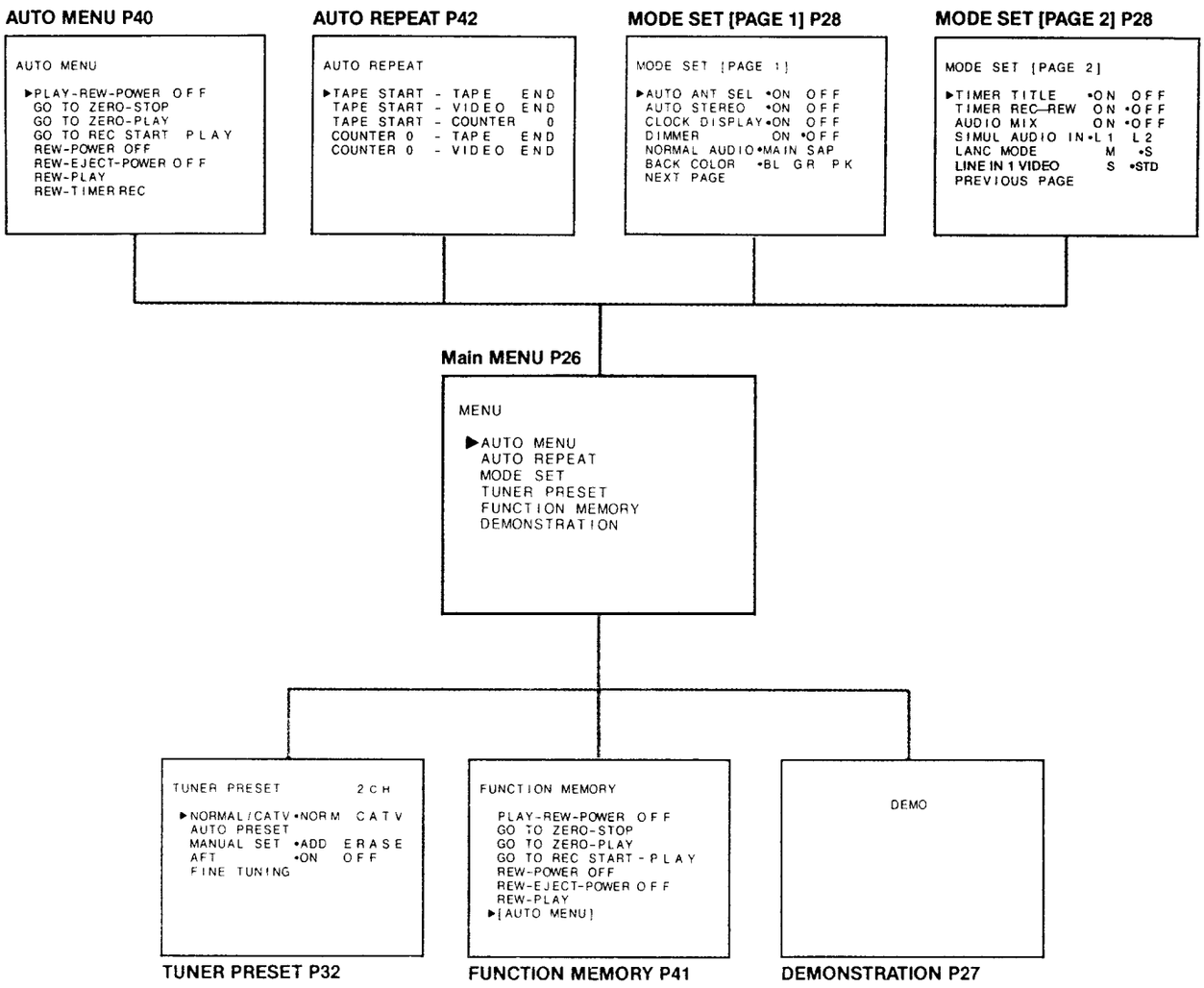
1 **Day of the week indicator**
2 **Command mode indicator**
3 **Tape speed indicator**
4 **Memory indicator**
5 **TRANSMIT indicator**
Blinks when all of the items for clock setting or timer recording have been set. Turns off when you press **TRANS.**
6 **Transmission indicator**
Lights momentarily when you press **TRANS.**
7 **CATV indicator**
8 **Date indicator**
9 **Turn-on time of timer recording**
10 **Current time, turn-off time of timer recording**
11 **Input mode indicator and channel position indicator**

Indicators in the LCD Window on the Front Panel of the VCR



1 Cassette indicator
2 Audio/video insert indicator
3 Linear time counter
4 Tape operation indicator (play and pause)

MENU Displays



Specifications

System

Video recording system	Rotary two-head helical scanning FM system
Audio recording system	Rotary two-head hi-fi system (Recording on the conventional audio track is monaural)
Video signal	EIA standard, NTSC color
Tape speed	SP: 33.35mm/sec. (1 1/4 inches/sec.) EP: 11.11mm/sec. (3/8 inch/sec.) LP: 16.67mm/sec. (11/16 inch/sec.) (playback only)
Maximum recording/playback time	8 hours (EP) (T-160)
Fast-forward and rewind time	Approx. 4 min. (T-120)
HIGH SPEED REWIND time	Approx. 2 min. 30 sec. (T-120)
Audio frequency response	20 Hz — 20 kHz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005%

Tuner section

Tuner system (audio)	Split inter carrier system
Channel coverage	VHF channels 2 to 13 UHF channels 14 to 69 CATV channels A-8 to A-1 A to W, W+1 to W+84
Antenna	75 ohm antenna terminal for VHF/UHF

INPUT and OUTPUT

LINE IN 1 and 2	S VIDEO IN (4-pin mini DIN) (1 each) Y: 1 Vp-p 75 ohms (unbalanced), sync. negative C: 0.286 Vp-p (color burst) 75 ohms (unbalanced) VIDEO IN (phono jack) (1 each) input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO IN (phono jack) (2 each) Input level: −7.5 dBs (0 dBs= 0.775 Vrms) Input impedance: more than 47 kilohms
LINE OUT	S VIDEO OUT (4-pin mini DIN) (1) Y: 1 Vp-p 75 ohms (unbalanced), sync. negative C: 0.286 Vp-p (color burst) 75 ohms (unbalanced) VIDEO OUT (phono jack) (1) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO OUT (phono jack) (2) Standard output: −7.5 dBs at load impedance 47 kilohms Output impedance :less than 10 kilohms
MONITOR OUT	S VIDEO OUT (4-pin mini DIN) (1) Y: 1 Vp-p 75 ohms (unbalanced), sync. negative C: 0.286 Vp-p (color burst) 75 ohms (unbalanced) VIDEO OUT (phono jack) (1) Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative AUDIO OUT (phono jack) (2) Standard output: −7.5 dBs at load impedance 47 kilohms Output impedance: less than 10 kilohms
CONTROL S IN	Minijack (1)
CONTROL S OUT	Minijack (1)
CONTROL L	5-pin DIN connector (1)
HEADPHONES jack	Stereo minijack (1) Output impedance: more than 8 ohms Output level: 45 mW at load impedance 8 ohms

Timer section

Clock	Quartz locked
Time indication	12-hour cycle
Timer setting	Only for recording 8 programs over one month at max.
Power back up	Built-in self-charging battery Back-up duration: Up to approx. 3 hours at one time

General

Power requirements	120V AC, 60 Hz
Power consumption	45 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Dimensions	466 × 100 × 394 mm (w/h/d) (18 3/8 × 4 × 15 5/8 inches)
Weight	Approx. 8.5 kg (18 lbs 12 oz)

Wireless Commander RMT-V5A

Remote control system	Infrared control
Command mode	VTR1/VTR2/VTR3 selectable
Power requirements	3V DC, 2 size AA batteries (IEC designation R6)
Dimensions	75 × 45 × 235.5 mm (w/h/d) (3 × 1 13/16 × 9 5/16 inches)
Weight	Approx. 240 g (8 1/2 oz) (excluding batteries)

Accessories supplied

Wireless commander RMT-V5A with two size AA batteries (IEC designation R6) ..... (1)
75-ohm coaxial cable with F-type connectors ..... (1)
Audio/video connecting cable (3 phono to 3 phono) ..... (1)
S video connecting cable (4-pin mini DIN to 4-pin mini DIN) .. (1)
External antenna connector ..... (1)

Design and specifications are subject to change without notice.

Troubleshooting

If any difficulty should arise during operation, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the VCR, and contact your Sony dealer or local authorized Sony service facility.

	Symptom	Possible causes and remedies
Power	The POWER switch does not function.	•The power cord is disconnected. •The VCR is in the timer recording standby mode.
	The power is turned off.	The safety device on the VCR has been activated. Turn the power off, disconnect the power cord from the wall outlet and leave the VCR turned off for more than 1 minute.
Clock and timer	The clock has stopped and "AM 12:00" is blinking.	There has been a power interruption. Reset the date, clock time and timer settings.
TV reception	TV program is not clearly displayed on the TV screen.	•The channel for the VCR is not correctly tuned on the TV. •The TV signal is weak. Adjust the direction of the antenna. •The AC power cord of the VCR is disconnected.
Recording and playback	Noisy picture during recording	•The channel for the VCR is not correctly tuned on the TV. •The TV signal is weak. Adjust the direction of the antenna.
	No picture on the TV screen	•Press **ANT TV/VTR** so that the VTR indication appears in the display window. •The TV's channel is not set to 3 CH or 4 CH, or the video input has not been selected on the TV.
	Recording cannot be made.	•No cassette has been inserted. •The tape is at its end. •**INPUT SELECT** is not set correctly.
	The playback picture is not clear.	•The channel for the VCR is not correctly tuned on the TV. •A tape recorded on another VCR is being played back. Adjust the tracking with **TRACKING NORMAL/SLOW** and **STILL ADJUST**. •The video heads are dirty. Clean the heads using the Sony T-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony facility. •If you used a commercially available wet-type cleaning cassette, it may have damaged the video heads. •The video heads are worn out. •Adjust **SHARPNESS**.

	Symptom	Possible causes and remedies
Recording and playback	The picture moves vertically during picture search mode.	Adjust the vertical hold control on the TV or color monitor.
	Distorted or noisy sound	**REC LEVEL** was not properly adjusted.
	Sound drop-out	•The tape is defective. •Use a new video cassette tape.
	Stereo recording cannot be made.	AUTO STEREO is set to OFF in the MODE SET menu.
	Both main and SAP sounds are heard when playing back a tape on which an MTS broadcast was recorded.	AUDIO MIX is set to ON in the MODE SET menu.
	No sound is recorded on the normal audio track	NORMAL AUDIO is set to SAP in the MODE SET menu when there is no SAP broadcast.
Timer recording	Timer setting cannot be made.	•The current time has not been preset. •**NORM/CATV** on the Commander is set to CATV (NORM) though NORM (CATV) is selected in the TUNER PRESET menu.
	The TIMER REC indicator does not appear even though you press **TRANS** or **TIMER REC ON/OFF**.	•No cassette has been inserted. •The tape is at its end. •No timer recording program is set.
	The cassette is ejected when you press **TIMER REC ON/OFF**.	The safety tab of the cassette has been broken off.
	Timer recording was not made.	•There had been a power interruption of 3 hours or more. •**TIMER REC ON/OFF** was not pressed.
Data screen	The data screen does not appear.	•Press **DATA SCREEN**. •The TV or color monitor is connected through the LINE OUT VIDEO jack.
Others	Cassette cannot be inserted.	Another cassette is already in the compartment.
	The Commander cannot be operated.	•**COMMAND MODE** has not been set correctly. •**LEARN/USER** on the Commander is set to LEARN. •The batteries are exhausted.
	When trying to operate the VCR with the Commander, the VCR beeps.	The beep shows that the operation is not possible. Ex. •When you try to preset channels during recording •When you try to execute the AUTO MENU or AUTO REPEAT function during playback •When you try to set a timer recording before setting the clock